

Rank Xerox has big cuts in store

by Greg Ingham
RANK XEROX's computer retailing activity is being cut back severely following a projected divisional loss of £1.2 million for the current financial year. This is despite claims that the division could have been profitable by Christmas. "But this is a completely political decision," said one executive.

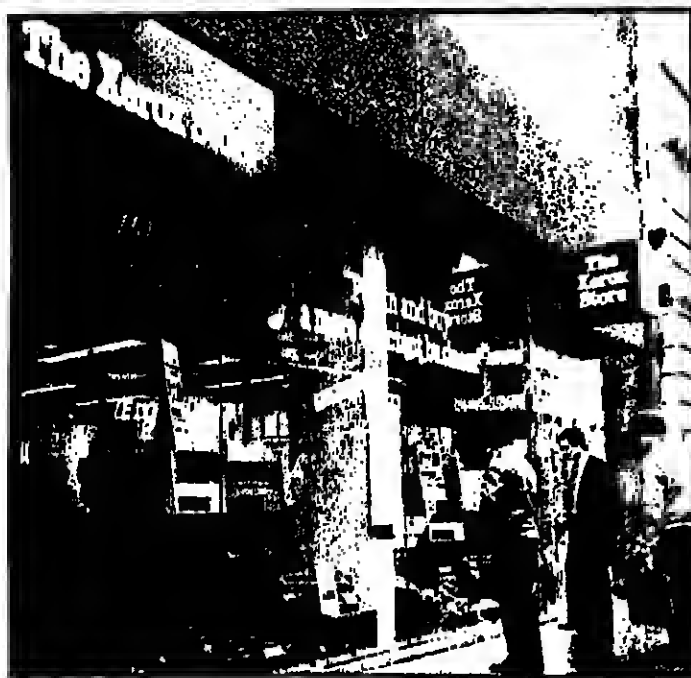
He added: "Effectively, our retailing division is being scrapped. It wouldn't surprise me if there was only one showroom left in a few months."

The official reason from Rank Xerox is that it wants to concentrate on selling its own micros, particularly the 820. External affairs manager Jimmy Baker commented: "Our product range is good and our great experiment is still ongoing. What we're going through is a degree of rationalisation, not a cutback."

He denied that it represented a retreat back to the world of copiers for Xerox, saying: "If you're going into uncharted waters, you'll get good and bad times, but at the end of the voyage, you can forget the bad days - not that this is a bad day."

The Xerox organisation has been beset by financial and structural problems for some time. Last year its American parent company had a 29% drop in profits. At the same time, the British arm made £6 million profit from 6,000 employees. Some £1.5 million of this came from the copy centres which employ 300 people.

According to one of the branch managers affected by the closures, Xerox's problems with selling



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micros stems from "a general lack of awareness of the retail market and its sheer inability to change."

And he adds: "The whole experiment of selling a wide range of micros has been a catastrophe."

Low-cost electronic mail for micro users

by Philip Hunter
BRITISH TELECOM and Applied Computer Techniques have combined to offer inexpensive electronic mail services to users of most popular micros.

The service will be available only on ACT's 16-bit Sirius micro and its recently announced Apricot portable. But the company plans to support the IBM Personal Computer later this year and says that it will be possible to link any computer to the service, micro or no.

The service called Micromail will run through BT's Telecom Gold computer and will be entered by plugging a small modem card into the computer, which then automatically dials a personal mailbox. "After that all you need to do is read your mail," says Tony Bryan, managing director of the ACT bureau company involved in the development.

An electronic letter is sent by keying in the name of the recipient, then the message, with an optional express category for urgent missives.

Micromail works out cheaper than rival mail services, for short messages at least. A three-page A4 letter at off-peak times will cost 12.3p, less than a second class stamp. At peak rate a three-page 1,200 word letter will cost around 45p.

LINE NOISE

THE government is putting up £200 million over five years for the Alvey Programme of advanced computing research, partly as a 50% grant to industry - but can UK firms match it? Ferranti manager Will Robinson points out that between five and 10% of turnover goes on research but most is to keep existing products up to date. Less than a fifth of research spending goes on new work and much of that work is not covered by Alvey anyway. By Robinson's calculations giants like Plessey and GEC spend about £5 million on Alvey-type work a year. But industry has to match the government's £40 million. So if the industrial giants are contributing less than half the £40 million, can the comparative minnows, the software firms, make up the balance?

AN unlikely microcomputer sharing partnership between Hepworths, the UK's number three meat supplier, and Data Logic is in the offing. Hepworths is believed to be planning to convert some of its 300 high-street shops to sell IBM and Nippon Electric personal computers. Hepworths is running tight-lipped about the deal, but it is expected that they plan to get the market sewn up with inferior systems.

Software booms but mainframes moulder

by John Kavanagh
SOFTWARE is clearly the business to be in according to half-year results from some big US firms. MSA's income rose 46% and profit was up 420%, while Burroughs and Sperry showed no growth in the mainframe and minicomputer manufacturing business.

Last year MSA became the first independent software firm to top \$100 million in revenues. This year the target is \$140 million. At the half-way stage revenues were \$56.8 million. Profit recovered from a \$2.3 million first quarter loss to show a \$924,000 profit after six months.

"We've made losses in the first quarter for the last 10 years," said UK managing director Dan Schmidt. "This is a very seasonal business, especially in the US, where companies' financial years tend to follow the calendar year."

"In the first quarter they are closing their books, so there is no time for decisions on new systems. Those decisions come in the second half, in time for the new year."

BT is also developing a similar service called Telemail which will run exclusively on PSS. BT is delaying the release of Telemail until it can decide how much it can sell it for, according to an industry communications expert.



READ: "Sperry UK coming out of its difficult patch."



SCHMIDT: "This is a very seasonal business."

MSA is growing quickly in Europe: osw business was up 78% in the first half. And the Peachtree microcomputer software firm grew 150% to \$9.2 million - the same as for the whole of 1982.

Burroughs' revenues were slightly down at \$2,036 million and profit was up 2.6% to \$70.06 million. Sales revenue was flat and rentals fell 8% - at a time when IBM sales were up 30%.

Sperry's first quarter results showed a similar picture. Computer systems revenue was up just 1%. But overall the corporation seems to be on the road to a profit recovery, with a 52% increase to \$24.6 million. Total revenue grew marginally to \$1,221.8 million.

Computers account for about half Sperry's business, while electronics, including defence and aerospace products, make up another 25%.

The electronics and minicomputer group Gould had a 1.4% rise in turnover to \$645.7 million at the six-month point. Profit fell 11% to \$34.8 million, although much of the drop was from discontinued operations.

Sales of 32-bit minicomputers were lower than expected, but electronic components did well.

Sperry UK vice-president and general manager Bill Read said they were all in the first quarter. He predicted that 1983 would be the year that Sperry UK came out of its "difficult patch" which has lasted two years.

Alvey is spot on

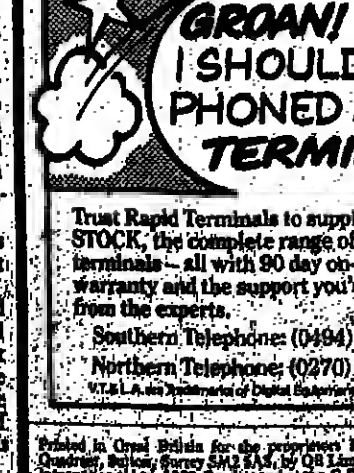
From page 1.
cl, who is running expert systems, and administration director Dr Timothy Walker from the Department of Trade and Industry.

Close links between the UK's Alvey Programme of advanced computing research and the BEC's Esprit research project are to be set up through GEC 4000 series minicomputer. The machine will link the university and Inter-company packet switched networks of the UK programme with the Esprit network for information exchanges and to enable companies to find suitable partners throughout Europe.

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READ: "Sperry UK coming out of its difficult patch."

Computer crime is all a fraud say Canadians

by John Riley
THE widely-held "tip of the iceberg" theory that 85% of all computer crime goes unreported in billions of dollars lost every year was challenged in an editorial Canadian report.

"There is very little data clearly demonstrates that computer crime poses a serious problem," states a Canadian government committee on computer crime instigated by Pierre Laporte, a Canadian MP. The committee, which has been sitting for 18 months, nevertheless recommended that two new offices be created in Canada: one to monitor access to a computer system, and another to monitor alteration or deletion of computerised data.

The committee states that computer crime is over-estimated because any offence remotely associated with a computer is described as computer crime. In instance, if a dishonest bank employee manually falsifies bank records which are fed into the bank's computer, he is no longer considered a fraud, but a computer crime. Therefore, there is a tendency to sensationalise the common offences.

Evidence collected by the committee suggests that approximately 75 cases of computer crime are reported annually worldwide with an annual loss of about \$1 million.

The committee concluded that "relatively little is known about the incidence and seriousness of computer crime," but that it is a justification for legislative expediency. That is why the committee recommended legislation stop a series of abuses which are not prohibited in Canadian law.

Kinnock lashes education strategy

by George Black
LABOUR leadership contender Neil Kinnock has hit out at the government's "trivial response" to the need for computer education.

He described the "micro in every school" programme as cosmetic and inadequate and lashed out at what he saw as a retreat from the subject by the Inner London Education Authority.

"It is a real indictment that a major local education authority has to circulate schools advising them not to enter upon programmes which will encourage greater use of computers simply because there aren't the resources," said the Shadow education spokesman at a meeting at Stokesley to Yorkshire.

A commitment which adds up to something like a half-hour per year in secondary school can only be described as irrelevant in contrast with the commitment in some other countries - leading up to one computer for every student in the average American university.

He claimed that official IT "window-dressing" had hidden a massive shortfall in the output of newly trained staff.

"There has been no serious response to the manpower needs of the technological changes which are taking place," said Kinnock.

There was a demand for 30,000 skilled workers, but training was only being output at the rate of 1,500 a year, which would rise to a maximum of 3,000, he said.

No effort was being made to provide proper training technology for 16-18 year-olds.

Labour must establish a plan for technology which would provide



KINNOCK: "Irrelevant."

thorough training, he said - "not just how to push buttons on a robot".

"Our option is now in danger of comprehensively squandering the benefits of new technology as fully as the benefits of North Sea oil have already been wasted away by government policies."

MILEA's Brian Weaver said it had warned schools to think very carefully before buying computers that might be a burden on teaching resources. The main criticism of government policy was that the equipment was inadequate for the variety of school uses because of lack of training, support and suitable software.

Is Department of Telecomms on the way?

by John Riley
TELECOMMUNICATIONS in the UK should be controlled by a new single government department according to the Home Office's Merriman Committee.

For the current control split between the Home Office and the Department of Trade and Industry is uncoordinated and piecemeal according to the committee's report. It recommends the establishment of a separate ministerial department with responsibility for all telecommunications or the formation of a distinct unit with its own minister within one department - preferably the DoT.

Dr Jim Merriman, former chairman of the National Computing Centre and chairman of the committee, said: "We were led to this conclusion because increasingly communications and computing are being seen as part of an integral whole and we were concerned when we looked at the organisational arrangements as they were. Part of the function was run by the Department of Industry and part by the Home Office."

"We are not criticising the quality, calibre and efficiency of the people in those departments, but having two masters is a source of potential weakness, resulting in increased difficulties in achieving

co-ordinated policies," he added.

Merriman thinks that the new department should be responsible for all telecommunications - "by that I mean from radar and position finding, to British Telecom's definition of telecommunications right through to computing."

The committee envisaged the core of the new department comprising the Telecommunications Information Technology and Space and Post Office Divisions of the Department of Industry, and the Radio Regulatory and Broadcasting Departments of the Home Office.

In the past the idea of a more powerful information technology ministry has been resisted by Whitehall on the grounds that too much power could be concentrated in one department under one minister.

Merriman and his committee, Air Vice-Marshal Arthur Foden, a director of Racal, and Philip Vine, former chief executive of Nottingham, are already disappointed with the response to one of their recommendations. That was that the radio regulatory department should be transferred from the Home Office to the DoT.

It was transferred to the Trade section of the enlarged Department of Industry and Trade.

The Society for Telecom Executives, British Telecom's top trade union, published a 76 page booklet detailing the case against privatisation. It says AT&T is five times bigger than British Telecom which enables better economies of scale, that the British supply industry will suffer, that the benefits of liberalisation will be hindered and that if British Telecom gets into difficulties the government will have to intervene in any case. See story, page 3.



MERRIMAN: "Wants single department."

Real time expert shortage intensifies

by George Black
THE already acute shortage of real time systems experts will be intensified by last week's announcement of a major Ministry of Defence contract.

And UK systems houses are anxiously awaiting the award of sub-contracts under the £250 million defence project which Secretary of State Michael Heseltine reported to the Commons.

The main contract has gone to British Aerospace to supply 750 air-launched anti-radar missiles (ALARM) to come into service in 1987. Most of the systems work will be carried out by BA staff at Hatfield and Marconi Defence at Sarnborough - but at least a dozen subcontractors are likely to be involved.

Marconi estimated that 150 of its software engineers would be occupied on the project - which threatens to make the dearth of experienced real time experts even graver towards the end of the decade. Marconi's share of the scheme could net £40 million to £50 million.

A spokesman for Ferranti said he expected to be involved in the work at some stage.

The award to BA is another blow to troubled UK firm Texas Instruments, the main rivals for the job. Texas planned to share the work with Lucas Aerospace, but the amount of work that this would bring to the UK was in dispute. The Texas High Speed Anti Radiation Missile (HARM) tender was eventually thrown out.

The inter-guided "thinking missile" will be designed to be fired from the Tornado aircraft to destroy ground anti-aircraft radar.

ICL's DM-1 is expected late and dear

by George Black
ICL INTENDS its Business-29 scheme software houses to secret discussions on its new mainframe, the DM-1, last Friday.

Although they were made to sign non-disclosure agreements, Computer Weekly understands that the compact-looking new machine will be on the market from autumn 1984 at an entry-level price of around £120,000.

Both date and price took the software people back as they were expecting to hear of its arrival in

the spring at around £100,000 or less.

Nevertheless, they were impressed to hear that it will be as powerful as the largest ME29 and fully-compatible with the ME29's TME, DME and CME operating systems.

It is being assumed that on Day One a VME-based machine will be available, with others, both higher and lower priced, following in early 1985.

This was the first occasion on which managing director Robb

Wilmore has allowed anyone outside ICL senior management to be privy to its DM-1 plans.

In the past ICL has been criticised for launching hardware with little systems or applications software support - this time they are beginning over a year in advance with a series of workshops to encourage the programming experts to rally round.

One innovation will be the Application Master code, which will generate update programs from IDMS and the Data Dictionary.

ICL is boasting that it will cut coding times by 90%.

Also bundled with it is ADRAM, the Alien Device Recognition Access Mechanism, a transition tool to VME, which could be a crucial element in creating upward compatibility.

ICL is pleased with the success of its Business-29 co-operative effort with software houses on the ME29 and wants to follow it up with similar schemes for VME and System 25. It will probably be called Partnership-25.



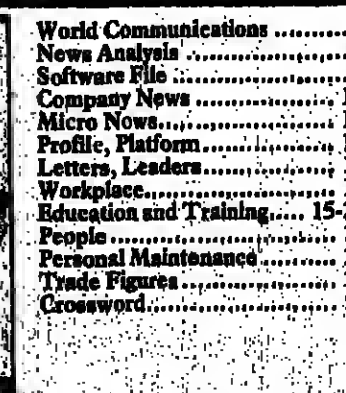
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مركز المعلومات



LEWIS... Signed the contract

Euro Commission buys an Amdahl

by John Riley
THE European Commission has gone American to boost its computer power and is to install an Amdahl mainframe at its computer centre in Luxembourg.

The contract to supply the commission with an Amdahl 470V/7-B machine was signed by John Lewis, president of the Amdahl Corporation and Richard Burke, the Irish Commissioner.

The computer is being made in Swords, near Dublin, and will join the existing ICL and Siemens mainframes in Luxembourg this October.

The Amdahl computer is not

replacing those machines but will take over tasks, mainly Community statistical work, which had been carried out through service bureaux to Bull and IBM mainframes.

"By 1985, we expect the total computing power in the Luxembourg computer centre to be 10 times that of 1981," said a commission spokesman. "The Amdahl was chosen because it offered the best price performance for our needs."

The commission would not supply details of the value of the deal, which includes unspecified IBM peripherals and an ITT telecommunications controller.

Rolfe and Nolan goes into turnkey systems

CITY bureau Rolfe and Nolan is diversifying into turnkey systems following its appointment as a DEC OEM.

It aims to get into the manufacturing market through a new partnership with the Newcastle software house Maribus. The bureau has taken a 10% share of Maribus, with equal slices being bought by Rolfe chairman Tim Hearley and the merchant bankers ICF.

Maribus managing director Steve Nesbitt introduced Rolfe to the manufacturing package Command, written by Pioneer of Northampton, which runs on DEC PDP-11 and Vax minis. Together they plan to develop payroll software to interface with Command.

Malcolm Rolfe, managing direc-

tor, said it intended to offer Command as a bureau service so customers could test it out before committing themselves to a turnkey system.

The tie-up involves Hearley also becoming Maribus chairman and Rolfe's John Westwood joining Maribus's board.

The bureau, which turned in results of £321,000 profit on an £1.8 million income, does most of its business in commodity broking, which remains successful while other bureau services are in decline.

Rolfe attributes this mainly to the thinness of competition. The International Commodities Clearing House bureau run by the banks is its chief rival.

Zebra earns its stripes

GENERAL Automation has sold £1 million worth of Zebra systems, its Pick-based range of micro and minicomputers, in the five months since they were launched. But the promised Xenix-based systems have yet to come to market.

Mike Long, the company's

managing director, said there had been problems getting Xenix to run on his hardware but these were now sorted out. "I expect the Xenix version to be announced at Comdex in the US in November," he said.

The company is forecasting that it will sell £4 million worth of Zebra systems in its first 12 months. Long said: "Pick has sufficient attributes to compete with anyone else's kit or software."

And Long said that Zebra will not be standing still. Vulture, an add-on board that sits on Zebra's back and speeds up Pick operation is expected to be announced by Pick shortly. Vulture will work hand in hand with Zebra's 68000 processor. A networking system is also in the pipeline.

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TECHNOLOGY INTELLIGENCE

IBM's nut sends stock tumbling

REPORTS that IBM was on the verge of launching its home computer last week sent a shock wave through high technology stocks on US stock exchanges.

And, despite good reports from many computer companies, shares dropped in price as shareholders, with the lesson of Texas Instruments' \$100 million loss, sold their holdings.

The selling was the result of reports that IBM planned to launch its "Peanut" home computer at the beginning of September.

Among the companies to suffer share-price drop was Wang Laboratories which last week announced that 1983 would be another record-breaking year with revenues up one third to over \$1½ billion compared to \$1.159 billion last year. The company's profits were up 42% to \$152 million from \$107 million last year and chairman An Wang announced an increase in the company's dividend.

Nevertheless, the shares dropped \$4.75 in value to \$34 on the American Exchange.

And on the rival New York exchange Honeywell dropped almost as much in value, \$4¼ to \$120 per share, despite reporting a slight gain over the equivalent quarter of 1982 without taking into account its \$30.3 million dollar bonanza for the sale of shares in CII Honeywell Bull, its French joint venture.

Biggest losers were Texas Instruments, which dropped \$5¼ to \$115½ per share and Digital Equipment, which dropped the same amount to \$104¼. Even giant IBM, the reported cause of the slide of high technology shares, dropped \$2¼ to \$123¼.

IBM's "Peanut" is reported to be the company's bottom of the range offering for home use, a single unit to plug into a television set. It is likely to be sold through mass market outlets to compete with the Commodore, Atari and

Texas Instruments multines with a retail price of less than \$750.

It is expected to use an Intel microprocessor, as does the IBM personal computer, most likely the new fast iAPX 186 and 188 chips.

Last month US computer company reports generally recorded an increase of profits and turnover compared to 1982. Motorola announced its turnaround as the market for all types of micros improved.

Sales were up slightly on 1982 at \$1.99 billion for the half year, compared with \$1.88 billion for the same period last year.

International leasing specialist Comdisco reported record earnings for its third quarter of \$13,199,000, an increase of 127%. The company cited increased profitability from financial services and a lower effective tax rate for the increase. Net earnings for the nine month period were \$36 million, 69% up on 1982.

Give your favourite a chance to win a Rita

NOMINATIONS now are being accepted for two major awards for the UK computer industry. Awards for "Systems Innovation of the Year", to be sponsored jointly by the National Computing Centre and Computer Weekly, and "Newcomer of the Year", sponsored independently by Computer Weekly, will be given under the Recognition of Information Technology Achievement scheme (RITA).

Nominations in each category will be presented to a distinguished panel of judges, with the winners being announced at the Rita awards dinner in Birmingham on January 17, 1984.

The ground rules for nominations are simple. Select your choice for "Newcomer of the Year", or "Systems Innovation of the Year", or both, and complete the form below. A separate entry should be made for nominations in each category.

The award to "Newcomer of the Year" will go to that start-up computer company which the judges think best exemplifies how the UK can remain a force in information technology markets.

The company will have been in business less than two years as of the time of close of nominations on

September 30, 1983. Judging criteria will be relatively open-ended, but can include: financial performance (where available), market penetration, employment opportunities, innovation, and initiative and imagination.

The company must be of UK origin, and should be involved in the provision of hardware, software, or services to the information technology market.

"Systems Innovation of the Year" will be awarded to that complete system, component, peripheral part of a system which is judged to be the most outstanding example of achievement in the field of information technology in the UK during 1983.

The equipment or systems must be available in the UK during 1983, and the innovative element in the system must be wholly or predominantly of UK origin. Software alone and word processing or office systems are precluded as these are covered by other Rita awards.

Companies or individuals cannot nominate themselves. Members of the staffs of Computer Weekly, the National Computing Centre, and Clapp & Polak may not enter.

In each award category, a case of

wine will be awarded to the person who first nominates the ultimate winner. In addition, the first person in each instance who nominates one of the two runners-up will also receive a case of wine.

Nominations should include a short statement explaining why the company or individual should be judged the "Systems Innovation of the Year" or "Newcomer of the Year". Nominations must be received by Computer Weekly before or on Friday, September 30, 1983.

Judges for the Rita awards 1983 are: Doug Eyclons, director general, Computing Services Association; David Hirschberg, deputy president, British Computer Society; David Fairbairn, director, National Computing Centre; Ted Cluff, secretary general, Institute of Data Processing Management; and Dr Paul Freeman, director, Central Computing and Telecommunications Agency.

There are six other Rita awards in addition to those sponsored by Computer Weekly and the NCC: Software Product of the Year; Office System of the Year; Supplier of the Year; User of the Year; Personality of the Year; and Best User's Training Method of the Year.

RITA Recognition of Information Technology Achievement AWARD

Return this form, to arrive by first post September 30, 1983, to: Linda Allen (Rita Awards), Computer Weekly, Room L218, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS.

I wish to make a nomination for the Newcomer of the Year/Systems Innovation of the Year award. (Please delete where appropriate. If you wish to nominate in both categories, please photocopy this form.)

My name _____ Job title _____

Company _____

Company Address _____

Telephone _____

My nomination is (Newcomer or System) _____

Company Address (full postal address if possible) _____

I attach a short statement explaining why my nomination should win.

Signed _____ Date _____

SALES BRIEF

Motorola has \$50m deal with AT&T

MOTOROLA has won a contract worth at least \$50 million to supply digital switching and base station equipment for use of AT&T's planned cellular radio service in the US. AT&T will also buy systems from its own Western Electric manufacturing subsidiary.

Amdahl order

BRITISH Airways has ordered £1.5 million worth of disk drive and controllers from Amdahl, whose 470-series mainframes are used since 1978. The order is for nine 6880 controllers and 41 40K drives to replace many of the existing 3330-class devices. They will provide nearly 40Gbyte capacity and were chosen because of price, performance and customer mental characteristics.

ICI buys minis

ICI HAS ordered three GEC IM 1Mbyte minicomputers for its first stage in its pilot project to implement Open System's interconnection on its in-house computers. The minis will be used as network management centre and two packet switches, forming a link between the company's private data network and public services based on the X25 international packet switching standard.

Tarmac is Safe

TARMAC Construction has obtained Safe Computing on a £140,000 contract as consultant during its conversion from a DME operating system to VME's two ICL 2955 mainframes. The system supports 30 VDUs at its office and 22 terminals in a department around the UK. The move to VME is designed to improve facilities for software development and services to end users.

BT takes ABC

BRITISH Telecom has placed its first order for an enhanced version of its Alarms By Cable (ABC Alert) system with Standard Telephones & Cables, which developed the system under contract to BT. The enhanced version of the system will handle three different types of emergency - such as fire, flood or intruder - and route the call to the appropriate authority.

Booking improves

BRITISH Rail has replaced its BASF 760 processor with a BASF 768 to support its plans to more than double the scale of its passenger agents' computerised booking system for Sealink ferries and air seats. In the peak season the new system is expected to handle more than 10 messages a second from an eventual 4,000 travel agents via videodata terminals.

Quest for MSC

THE first of the Manpower Services Commission's Skillcentre will offer training in computer-aided design to traditionally trained draughtsmen in computer-aided design. The first centre, based at £43,000, Quest C&E Quads, is a two-dimensional mechanical draughting system.

Philips overseas

THE first overseas order for the Philips 3607 14in colour business videodata terminal, launched in March, has come from the Indian Post Office. The order is for more than 500 terminals, with a total of £500,000, to be installed in the next few months.

Sony UK is first

SONY UK has become the first user of BL Systems' data communications network under the Department of Trade and Industry Value-Added Network Service licence. BL's network is being expanded to be within reach of a range of 60% of UK business phone users.



BROAD... Optimistic and pessimistic.

French minister makes bosses chafe

by Jack Gee

THE heads of France's state-owned computer and electronics firms are beginning to chafe under the new mastery of Telecommunications Minister Louis Mexandeau, whom President Mitterrand recently appointed overlord of the two industries' development.

One of the first moves by Mexandeau in his new position as supreme has been to sign an agreement with West Germany's Telecommunications Minister Christian Schwarz-Schilling for joint development by the two countries of a cellular radio system, the S900, following Britain's decision to introduce its own technology.

Mexandeau has upset the heads

of the industrial groups by declaring: "This will be a phone system for cars and also a portable system for individuals. It will be Franco-German and I hope European. One day I shall go to see Wisse Dekker, chairman of Philips and tell him: 'Here I am. Treat me as your guest. Now we can get down to brass tacks.'"

The French minister's statement has come as a shock to Alais Gomez, head of Thomson-Brandt and his counterparts Georges Pebereau at CIT-Alcatel and Jacques Stern at Bull.

They regard the blunt remarks by bearded Mexandeau, a former history and geography teacher, as a warning that now he has taken command of the five-year electron-

Tariff tiff moves micro men to overseas threat

by Andrew Thomas

UK MICRO makers are threatening to manufacture overseas unless EEC tariff levels are reduced quickly. The British Microcomputer Manufacturers Group (BMMG) last month met Information Technology Minister Kenneth Baker to press for a change in the import duty rates on component parts, currently 17% compared with 6-7% on imported systems and sub-assemblies.

BMMG chairman David Broad warned Baker that UK companies were in the throes of deciding where sub-contract and manufacturing facilities are to be sited.

"It is ludicrous that these rates of duty on essential component parts should force British manufacturers to decide against creating jobs in the UK," said Broad.

Some UK micro manufacturers already have overseas assembly plants. Rair set up a research and development installation in Santa

Clara, California, a year ago.

General manager Howard Sayles said that although it was not originally planned to manufacture other than prototype preproduction, it was now cheaper to build in Santa Clara than to import components for UK manufacture.

"The difference in tariffs means it could be cheaper to build offshore," he said. "It can only result in a slowing of growth in the UK."

Nigel Searle, managing director of Sinclair Research, said that manufacturers could not wait and endure delays whilst the UK electronics industry debated the matter with the EEC.

"Alternative ways of compensating UK manufacturers will have to be found in the meantime if offshore decisions are to be avoided," Eddie Bleasdale, of Bleasdale Computer Systems, added: "I do not want to fabricate printed circuit boards overseas, but I am forced to consider it unless this anomaly is urgently redressed."

He is backed in this by another BMMG member, Chris Shelton of Shelton Instruments, who currently has a quote out to a manufacturer in Mauritius.

Baker wants to bring the matter to an early conclusion in order that approaches can be made to the European Commission.

"In the only UK electronics sector where the balance on international trade is in surplus, the government must ensure that the industry is not unfairly treated," he said.

But Broad remains pessimistic on the outcome of the talks. "I'm optimistic about the decision," he said, "but I'm pessimistic about the time it's going to take to get anything done about it."

There are still several stages to go through before the Department of Trade and Industry decides on the case it should present to the EEC. A National Economic Development Council working party, on which Broad also sits, is due to

meet this month.

Broad hopes it will come up with a united front as to what the Department of Trade and Industry's stance should be.

But the working party has members from the semiconductor industry, as well as circuit board and equipment builders.

"The semiconductor manufacturers want to keep the tariff barriers in their favour," said Broad, "but they need customers."

He rejected the proposal to reduce the component tariff to 1% on the grounds that it does not go far enough.

Many computer builders - Sinclair, in particular - are looking for a quick expression of support from the department, or they will look seriously at overseas assembly. Even Broad's own firm, Comart, which is committed to the BMMG line and British assembly, will have to consider offshore work.

■ Leader Comment - page 13.

Zygal's new deal helps the dealers

by Nuala Moran

PROVIDING end user-type service to small dealers and computer shops is part of a new marketing strategy launched this week by Zygal Dynamics, the terminal distributor.

Under the deal there will be an unlimited warranty on demonstration equipment and the 90 day field service warranty will be extended to six months from date of sale to end user.

If there are any problems Zygal's field engineers will visit the dealers' premises, saving equipment and money sending equipment to Zygal's service centre in Bicester.

Zygal has also introduced a finance plan which allows dealers to pay over three months. This will ease dealers cash flow.

Dea Flynn, Zygal's sales and marketing director, said: "The retailer has traditionally shied away from the more sophisticated and expensive terminals. He is worried about support and cost, although to have such equipment to offer adds a highly desirable thing to his bow. This deal means they won't have to worry unduly about finance or maintenance."

Discount will be available up to 35% for cash, but Flynn said: "We are not trying to tie dealers to us."

UN asks UMIST man to help in India

by Nuala Moran

PROFESSOR Gordon Black, UMIST professor of Computation and director of the Manchester-based regional computer centre is to visit India at the request of the United Nations to do some consultancy work.

Black will spend three weeks at a research centre in Poona advising on large systems in research and development. The centre is involved in hydrological research including power stations and water supplies. "They need a computer to help with research," explained Black.



FLYNN... Wants network.

discount. What we want is to build up a good dealer network."

Fast turn around from Zygal's 16,000 square feet capacity warehouse is another aspect of the dealer deal. The company is offering next day delivery.

The deal applies to all Zygal's range of terminals, including Diablo and Fujitsu daisywheels, DEC VDUs and GEC matrix printers.

Zygal sells direct to large end users and OEMs and Flynn said the move to attract dealers would not affect the direct sales force working in this part of the market.

He also said the company was prepared to expand its service organisation to cope with a growing demand, but added: "We are selling good products. Diablo for example is a market leader. Such products don't need much servicing."



BLACK... In demand.

The Professor has often been asked to give advice in a similar capacity. "This is nothing new for me," he said.

Cincom promises Ultra for October

by George Black

ULTRA, the version of Cincom's TIS database management system for DEC Vax users, is to be available from October 1, after several postponements due to technical hitches.

The US-based software house is sticking by market trends in making DEC the second string to its own IBM software, for other manufacturers' equipment will be developed on a "selected basis".

International sales director Dennis Yablonsky said in Cincinnati that Ultra was in the final stages of customer testing after intensive development at its UK research base.

A worldwide announcement will be made at the end of September.

TIS, boasted to be the biggest piece of software ever written outside IBM, was first announced as a concept in 1975, which Cincom agrees was probably too early considering the time it took to deliver. But Yablonsky said: "Customers are making long-term decisions so we feel we must let them know that the products are coming." TIS now has 50 US customers and four in Europe since its 1982 general release.

Cincom's Vax effort is a recognition of the growing importance of the 32-bit supermini. Mini systems software and applications products are likely to form Cincom's main growth area over the next five years; at present three-quarters of its revenue — predicted as \$71 million for the year ending September 1983 — still comes from IBM mainframes and plug-compatible systems software. Total, the database management system from which TIS has evolved, has about 6,000 installations worldwide, including 12 of the 15 biggest databases, Cincom claims.

But it is emphasised that TIS is a new system, not a rewrite of Tual.

European marketing of TIS is only now getting off the ground, with the four European users including British Leyland. The European market position of TIS will be greatly strengthened by the release of the DOS operating system version planned for the middle of 1984. To date only the

OS version has been available, limiting the number of possible sites on this side of the Atlantic.

TIS product manager Tom McLean said: "Nobody is really relational today. We, like our competitors, are working that way."

TIS did not do it all, he admitted, but was approaching the relational implementation. The directory, as opposed to dictionary-driven TIS, has taken a \$30 million investment and about 350 man-years of effort, he said. Rival Cullinet is claiming its IDMS/R as a fully relational database.

Ultra products are almost identical to TIS. A Vax version of Cincom's fourth generation language Mantis is planned, but is still at least a year away, according to Yablonsky. Meanwhile Cincom is keeping an eye on the possibilities with other hardware. In the crucial 32-bit mini sphere it gets over 12% of its income. Wang, Prime, and NCR are pressing for a closer collaboration.

Product planning manager Don Campbell talks of converting TIS for ICL, in line with a "local development" strategy.



YABLONSKY... "In the final stages of testing."

Government funds CAD/CAM study

by Nuala Moran

UNDER a revamped CAD/CAM awareness scheme, the Department of Trade and Industry will provide half the cost up to £250,000 for firms to hire consultants to plan the introduction of new machines and production methods.

This is one part of the enhanced CAD/CAM awareness project announced last week by Kenneth Baker, the Industry Minister. The allocation of the £10 million fund, the changes will cost was announced in the March Budget.

Until now the amount available for consultancy under the scheme was limited to £10,000 for feasibility studies. This has now been increased to £250,000.

Provision of money for plant hire to introduce CAD/CAM, new facilities, and should counter criticisms that the awareness scheme did not help firms implement recommendations from feasibility studies.

Baker also announced the scope of the project will be extended so that any company with significant design problems eligible. This will include companies involved in the mechanical, electrical and electronics sectors, or which manufacture those products in other sectors which call for significant engineering design, or provide direct support services to these manufacturing sectors.

The DoTI has commissioned a self-teaching programme in the industrialists how to use CAD/CAM techniques. The programme will cost £500,000 to produce, but this will cover the first 1,000 copies of the programme.

Users' ideas spur Modcomp to act

by Donald Kennett

MODCOMP has been led by its customers to develop a communications processor which it claims will last for 10 years in the market-place.

Modcomp marketing consultant Chris Key said that when development of the ACP (Advanced Communications Processor) started in July 1982 it was because the company had realised that about 15 of the organisations with Modcomp Classic minicomputers were using them as front-end processors for Control Data Cyber mainframes.

"Once you see several customers doing it, you realise there's a gap in the market," Key said.

Sales into the CDC market currently account for 5% of Modcomp's communications product sales, which in turn are half of the total turnover.

If the ACP is successful, it will account for 20% of communications sales over the next few years, according to European communications marketing manager Dick Howe.

In the later stages of development, the ACP is intended to link all types of terminal to all types of processor. Implementations of IBM protocols are to be followed by enhancements based on international standards, if feedback from the market confirms that this is appropriate, and host-to-host links will be implemented via Network Systems Corp's Hyperchannel 50 Mbit-per-second local area network, for which Modcomp has a marketing licence.

In the UK in particular, Modcomp expects to be involved with supporting interactive data services on cable television networks, using a product it is developing as a successor to Hyperchannel.

"Wherever someone wants to run digital communications on an otherwise analogue channel, we're bidding for the business," said Howe.

"In the US, the cable companies are already in bed with the telephone companies and the market is sewn up," he added, "but we anticipate being a supplier to the UK."

"We expect to have a pilot system in next year. Banks, supermarkets and others will be using at least two of the seven cables in a trunk for business purposes."

"And when you're talking about 150,000 homes plus 20,000 businesses connected to a cable, you need a communications computer with significant peak handling capability."

"Our speciality is providing local area to wide area network combinations for multi-media office-of-the-future type systems. Other companies usually contribute word processing, teletext and telex at the terminal end."

"We concentrate on joining those terminals transparently and interworking between disparate protocols."

Key saw his company as having an almost evangelical role in the market: "Everytime we win," he said, "network vendors will sell more, hosts will have more people talking to them and host operators will not be stuck with one type of host."

Four US varsities get \$13m windfall

by Howard Karten

FOUR US universities were named last week for \$13million National Science Foundation (NSF) computer science grants.

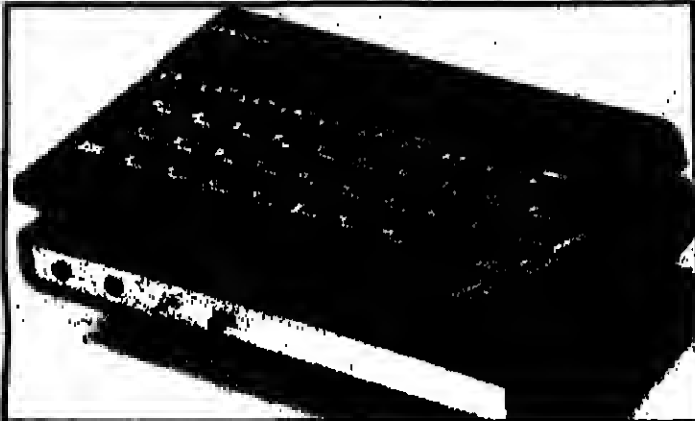
The grants, which stretch over a five-year period, will be used by the schools to try to expand computer research facilities, improve the general research environment in universities, and attempt to persuade more professors and graduate students to remain in the groves of academe.

Largest recipient was the University of Maryland, which will be given \$4.5million over the five years for work in image processing, numerical computation, and parallel multiprocessor systems.

The University of Pennsylvania will get \$3.8 million for artificial intelligence and natural language processing work, according to W. Richards Adron, program director for co-ordinated experimental research within the NSF Computer Science Division.

The NSF is an independent government agency charged with supporting, via grants, fundamental and applied research in all the sciences. The computer science program is currently running at about \$32 million, according to Adron, and has been increasing each year under the Reagan Administration.

Much of the most recent grants will go towards capital purchases and support staff.



The Sinclair ZX Spectrum and Prism VTX 5000.

Micronet gets on Spectrums

by Donald Kennett

MICRONET 800, the electronic magazine for micro users on Prestel, has latched on to the popularity of the Sinclair Spectrum to boost its user base.

Prism Microproducts, the company which handles the hardware and software interfaces for Micronet, has launched the Prism VTX 5000 videodata adapter at £59.95, the same price as the Spectrum.

It fits under the Spectrum, contains terminal emulation software in ROM and can communicate with similar devices at 1,200 bits per second in both directions, as well as with Prestel at 75bps up and 1,200bps back.

Paired with a 16Kbyte Spectrum it is claimed to be the first intelligent videodata terminal for less than £200.

Messages and graphics can be composed offline and printed on the Sinclair printer.

The first large order for the device has come from the Nottingham Building Society, for use with its HomeLink home banking service on Prestel.

Wang's personal top 20 due

WANG is to announce the first 20 third party software packages for its personal computer in September.

This will be the first announcement under the company's Software Connection which will make third party software packages available through the Wang dealer network.

David Pheasant, Wang ISO marketing manager, said: "A wide range of application software available through a comprehensive dealer network is one of the keys to the company's future growth in the personal computer market. The Software Connection is an extension of the programme introduced for the acquisition and provision of software for our VS range of hardware."

Micro franchises fire some French fervour

by Jack Gee

FRANCHISE selling of microcomputers is beginning to take off in France where three firms — Computerland, Sives and Cebea — now supply 30 retailers nationwide sales are targeted within a year or two.

Franchising in all fields of selling has until now developed slowly in France. But 500 franchise groups are now leading their brand name to 1,700 shops. About 200 of the franchise owners are newcomers during the past year.

By 1985 one-third of French retailing will be conducted on a franchise basis.

Trail-blazer in French microcomputer franchising is Sives, a computer services firm founded in 1979, Sives now has a dozen franchised stores in Paris and the provinces.

Philippe Comeyene, Sives marketing manager, said: "We soon knew we were the market leaders, and our suppliers confirmed this by giving us delivery facilities. That was when we decided to spread our wings outside Paris and conquer other French cities."

Sives offers national advertising, sales manuals, catalogues and carrier bags. Its franchised shops report that between the manager spent three-quarters of his time on buying merchandise. Now, thanks to Sives's purchasing pool, the proportion is cut to 10%, leaving the manager free to concentrate on selling.

Computerland, the world's biggest network of microcomputer retail outlets, with over 450 shops in 15 countries, has only eight shops in France including two in Paris.



World's biggest network of micro retail outlets.

Franchise users are required to make an investment of £50,000. Royalties are 8% of turnover plus 1% for publicity.

Jean-Louis Couture, who set up the first Computerland shop in Paris four years ago, said: "I contacted Tandy before choosing Computerland, which had just set up its European headquarters in Luxembourg. I was the 96th shop."

Cebea has 15 shops in France and plans to open at least eight more before the end of this year.

WORLD COMMUNICATIONS

Third World benefits from telecomms onset

Donald Kennett discovers the progress of World Communications Year

A MESSAGE to those who did not know already: it is World Communications Year. If that strikes anyone as news, the reason could be that the "communications" in communications year have been remarkably quiet.

We are now seven months into this World Communications Year (WCY), but it was only last week that the UK committee had its first meeting.

But committee chairman Sir Donald Maitland, a former diplomat and permanent secretary at the Department of Energy, said that a working group appointed by the committee had been hard at work from the beginning of the year and quite a lot had already happened.

The committee met last week to review progress, and it was pleased with that progress, he said. It would have a second meeting later in the year.

"If you start off with a bang in January, it is hard to sustain the noise for the rest of the year," he said. "Quite a lot has already happened and it will build up to a crescendo towards the end of the year, centred on Telecom 83 in Geneva in October."

Telecom 83 would be a major platform for UK interests, with UK firms combining to occupy a stand covering almost an acre, he said.

The objective of the United Nations World Communications Year campaign is to focus governmental attention, particularly in developing countries, on the role of telecommunications in the business and social life of a country.

In Maitland's view, improved telecommunications facilities had already helped education in India and Brazil, economic and social change in Indonesia and, more specifically, had helped to provide pure water supplies in Kenya, as well as improved the food production and distribution system there.

The film, *Person to Person*, made for the Department of Trade and Industry as part of the UK contribution to the international side of World Communications Year, describes the installation of satellite and microwave links in Nepal which began to transform the country's tourist industry in a matter of weeks.

In Hong Kong, the film says, efficient telecommunications allowed the people to take advantage of the opportunities that have made it a successful country to attract outside investment and to build up its own industry.

The film was a major part of the UK contribution, according to Maitland. It would be on continuous show on the UK stand at Telecom 83, where it was being



MAITLAND... "If you start off with a bang in January, it is hard to sustain the noise for the rest of the year."

Floating Point floats new range

by Robert Parry

ATTACHED processor holds Floating Point Systems Ltd threat from breakaway rivals by up to six times, gives four times as much memory capacity, and brings the price per megabyte down to below £1,500.

"With a distributed architecture, and the latest technology, we have realised a threefold improvement in price/performance over previous Floating Point Systems products," claims UK managing director G. Gadd. "It breaks the £1,500 per megabyte barrier for the first time in any floating point computer system."

The 5000-series products range up to 62 megaflops, and will have all the front end computer interfaces supported on the new Floating Point Systems 30-bit array processor line. Software for these FPS-100 and AP-1200 will run on the FPS-5000, and require a "minimum effort" for the user to take advantage of the power the new systems offer.

"Our intent is not to make customers overhaul their present software," adds Gadd. "The 5000-series is planned to merge with existing applications software in a continued system evolution."

The new array processor was aimed at general signal and image processing applications such as medical imaging and seismic data processing. Floating Point Systems' highest customer is the General Electric Medical Systems for X-ray and nuclear magnetic resonance scanners. The microcode for these specific applications should be no problem, it is just a matter of finding the time to write it, according to the company.

land, "and the other side of the problem is that, when you get duplication, you also tend to get gaps in your coverage."

But Richard Butler (the Australian who was elected the union's general secretary last year) has been quite clear that we want to stick to telecommunications systems.

The UN Conference on Trade and Development (UNCTAD) in 1980 generated a reaction from a number of Third World countries along the lines of "stop shoving your solutions down our throats and kidding yourselves that you know better than we do how to solve our problems."

But Maitland said that the North-South dialogue was on a better basis now, possibly because of the recession and the loan crises. The Brandt Commission had also had a positive influence, he said.

Third World countries are now worried that plans by developed

countries should welcome that, only maybe they don't know it yet. World Communications Year is supposed to be the means of telling them.

Presumably the Third World countries should welcome that, only maybe they don't know it yet. World Communications Year is supposed to be the means of telling them.

We in the UK don't need a World Communications Year, according to Maitland. "We cannot present telecommunications as something new," he said. "Like doorstep milk delivery it happens splendidly and we take it for granted. It's hard to work up enthusiasm about it."

But with something like 75% of the world's telephones being concentrated in 10 countries, there should be no shortage of places where enthusiasm is easy to come by.

This did not mean that the problem of the low priority given to telecommunications in many countries would disappear because of World Communications Year, Maitland said.

The campaign would spread the message that there was an important relationship between the general development of a country and

WORLD COMMUNICATIONS YEAR 1983 THE U.K. CONTRIBUTION

The most direct form of aid coming from the UK under the WCY campaign is the supply of 3,000 telephones to the Lebanon by British Telecom. BT also gave training to two Lebanese engineers

benefit from cheaper communications. They also want to sell their telecommunications products to the Third World and they want to open up the information channels through which trade is co-ordinated.

Twenty engineers will come on courses instead of the usual five or six.

Cable & Wireless is providing training to senior Chinese officials and is bringing a technician from St Kitts to the UK for training. The Department of Trade and Industry is sponsoring two radio engineers from Ghana at a frequency management seminar at the International Telecommunications Union in Geneva.

To demonstrate what UK technology will do for rural communities in developing countries, the Trade and Industry Department is in the final stages of organising the supply of three British Telecom designed UKD-5B rural exchanges, worth a total of £1.5 million, to a still unnamed Commonwealth country.

A conference sponsored by the Department of Trade and Industry, BT and Cable & Wireless in November is also aimed at Commonwealth countries. Though co-organisational, it is intended to bring together policymakers to discuss how the benefits of modern communications can be enjoyed.

The organisers plan to report on the conference to the new International Commission for Worldwide Telecommunications Development.

The most direct form of aid

coming from the UK under the WCY campaign is the supply of 3,000 telephones to the Lebanon by BT. BT also gave training to two Lebanese engineers and is sending two of its own engineers to the Lebanon for reconstruction work.

Despite the UK's having little need of WCY to make it aware of telecommunications, the Department of Trade and Industry is sending 80 sixth-formers and 21 trade unionists to visit telecommunications companies in Japan, the US and West Germany in December. The host companies include Nippon Electric, Fujitsu, AT&T, GT&S and Siemens.

The Trade and Industry Department has also produced a pack of wallcharts and teachers' notes for schools. Open days and seminars have been held at Plymouth and Ulster Polytechnics and at Bradford University.

Other events for underdeveloped UK residents include two Department of Trade and Industry-sponsored display hoots of telephones, teleprinters and videodata sets, which started their tour of mainline stations and airports in June, and the WCY Commemorative — a Maestro loan from BE Cars, which has been fitted out with a BBC Micro, a teletext television, a radio telephone, two Citizens' Band radios and a radio and cassette tape player.

The car is doing a tour of telecomms-related and unrelated events, including the Post Office Engineering Unlco conference in June, the Telecommunications Managers' Association conference in September, the International Business Show in October and Compec UK in November.

Squadron Telephones & Cables sponsored a telecommunications gallery at the Science Museum and a lecture on optical fibre communication, originally to celebrate its centenary, but later also as a contribution to the WCY campaign. The lecture, which did a tour of the UK as the Photon Connection, may now be taken abroad.

See Leader Comment — page 13.



Improved telecommunications facilities have helped to provide pure water supplies in Kenya.

Alvey supremo Oakley casts his net to make big catches

George Black reports on the Alvey Programme's progress as it puts its thoughts on paper

THE Alvey Programme is to lean heavily on existing organisations in its effort to move quickly into gear.

This is the key point in the first interim report of the Alvey programme directors, the men in whose hands Britain's high technology future now rests.

The directorate published its first thoughts on how to tackle its great task last week in a document called *Alvey and after*. It comes just 10 weeks after Brian Oakley's appointment as team leader.

It is the first of a series of newsletters which are to be addressed to the British research community on the progress of the programme derived from John Alvey's report to the government.

The directors may also issue bulletins on developments overseas, to compare their performance, as well as specialist reports for sub-groups.

Oakley asks all organisations with which he will have to deal to choose a single spokesman, to try to simplify what is bound to become an ever-thickening web of messages.

In addition to the initial four categories of research — very large scale integrated circuits, software engineering, expert systems and the man-machine interface — Alvey will be organised under three other broad headings: computer-aided design for integrated circuits, deemed a separate category from VLSI; infrastructure for a communication network and mail-

Some smaller companies were still worried about their role, but they would get a chance to make a contribution of expertise in conjunction with the bigger firms

box service; and information dissemination. Oakley wants to hear which of these fields participants intend to get involved in.

Oakley heads a full-time directorate of eight people, most on secondment from industry at the expense of their firms. There is one appointment to be announced to head the man-machine interface. Supporting members will be appointed to help the eight.

The named members of the directorate to work alongside Oakley are: Laurence Clarke, deputy director of the Alvey Programme and director, Large Projects, from GEC; Derek Barber, director, Infrastructure and Communication, from Logica; Dr William Fawcett, director, VLSI and MoD liaison, Royal Signals and Radar Establishment, from MoD; Dr David Thomas, director, Intelligence Knowledge-based Systems (IKBS) and SERC liaison, from SERC; David Talbot, director, Software Engineering, from ICL; and Tim Walker, director, administration, from DoT.

Oakley also has a part-time steering committee which offers a wide range of experience. The steering committee, which will oversee the future direction of the programme, includes Thorn-EMI Information Technology chief executive Colin Southgate, who was head of British Oxygen's computing efforts before its sale to Thorn.

It also includes Philip Hughes, the chairman of one of the coun-

try's best known systems houses, Logica; Plessey technology director, Keith Warren; and British Leyland systems subsidiary managing director John Leighfield.

They will be assisted by Oakley's former SERC colleague Professor Eric Ash of University College, London; the European Nuclear Research Centre (CERN) manager Colin Fielding; and Roy Croft, a deputy secretary from the Trade and Industry Department's IT division.

Action plans for each sphere will be drawn up by working parties made up of experts from industry and the academic world. Invitations to submit proposals for work under specific sections of Alvey will then be issued. In some cases outline plans are far enough advanced for invitations to be issued shortly.

Unsolicited proposals will also be accepted for work under Alvey, but they must be in line with the main thrust of the programme. It is suggested that outline proposals be discussed with a member of the directorate at an early stage.

The directors are to delegate detailed administration of the programme to appropriate existing organisations, which will be supported by representatives from industry, universities and the three funding departments — Defence, Education (through SERC) and Industry and Trade.

Advisory committees will back up each technology under development, made up mainly of DoT and SERC members.

GEC's Laurence Clarke oversees the large projects, which he indicated would number between four and eight. They are due to start in mid-September. Clarke admitted there were signs that some smaller companies were still worried about their role, but he said they would get a chance to make a contribution of expertise in conjunction with the bigger firms. He believed there would be satisfactory codes and contracts to allay fears of giving secrets away.

He said there was a good acceptance of the collaborative spirit, making it less necessary for the directorate to act as broker than was foreseen. UK firms were also beginning to get involved in the complementary European Esprit project.

He stressed the need to get the project going quickly.

"I think there will be a second round when people see new possibilities from technologies which are now emerging. Some wonderful domestic products which now cost £5,000 could cost £100 in five years — we have to make a few at £5,000 and see how the market takes them."

Demonstration projects — or "demonstrators" — will be launched to focus the research. Their aim is to provide services which did not previously exist, and it is expected demonstrators will cover applications in industry, defence, medicine and social services.

Most demonstrators probably will not materialise until the full five years are up, and may be preceded by prototype pilot projects. Teams for demonstrators will be formed immediately, and managed by a company well placed to market the final products, with sub-contracts going to several companies involved in various project technologies.

There will also be some smaller-scale demonstrators which may involve technology from other parts of the Alvey programme. In the VLSI area, the secrecy of

companies operating on the technology in the UK is seen as one reason why it should not suffer from delays.

ICL's David Talbot, who becomes software engineering director, will co-ordinate the many efforts already under way in software. It is a central challenge of the whole programme and one the directors clearly do not underestimate.

SERC's David Thomas, who is running expert systems, will get some senior technical experts to assist him. The SERC/DoT draft report *Intelligent knowledge-based systems: a programme for action in the UK* is likely to form the basis for work in Thomas' area. Universities have already begun forming a linked network of computers dedicated to IKBS research to which industrial computers will be linked.

Oakley again draws on his SERC background for the man-machine interface scheme and will build up Professor Brian Shackel's committee for the purpose.

There is an early insistence that collaboration must mean what it says: "Only in very exceptional

circumstances will a contract or grant be awarded to a single organisation."

Robinson said the Alvey team were well aware of the need for a constant review of the funding. He thought there was a need for another programme to take people how to market and products.

Where the work is predominantly academic, a funding "uncle" will be required to monitor it closely to ensure a practical outcome.

Logica's Derek Barber is to set a network linking the main research centres, using British Telecom's PSS and the SERC's connection to universities.

The British network will be linked to that of Esprit. An search must be carried out in the UK and the results exploited through European partners in spirit may be invited to lead a task.

A standard information exchange agreement will be set up for all projects to safeguard participants' rights to share search data while remaining free to compete in the market. The consortium can make its own arrangements.

Industrial firms qualify for 50% funding from Industry or Defence departments, whereas academic institutions can get 100% from the

government, unions and manage-

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Roca's Geoffrey Loner and Ferranti's Wilf Robinson were on the NEDO committee which made that observation.

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Education Department or SERC — up to a ceiling of £200 million. Robinson said the Alvey team were well aware of the need for a constant review of the funding. He thought there was a need for another programme to take people how to market and products.

Where the work is predominantly academic, a funding "uncle" will be required to monitor it closely to ensure a practical outcome.

Logica's Derek Barber is to set a network linking the main research centres, using British Telecom's PSS and the SERC's connection to universities.

The British network will be linked to that of Esprit. An search must be carried out in the UK and the results exploited through European partners in spirit may be invited to lead a task.

A standard information exchange agreement will be set up for all projects to safeguard participants' rights to share search data while remaining free to compete in the market. The consortium can make its own arrangements.

Industrial firms qualify for 50% funding from Industry or Defence departments, whereas academic institutions can get 100% from the

government, unions and manage-

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SOFTWARE FILE

GW-Basic to be sold via dealers

MICROSOFT is to sell its GW-Basic through dealers from October. The language has previously only been available through hardware manufacturers such as IBM and ACT.

GW-Basic is aimed mainly at program developers and runs on all machines supporting the MS-DOS operating system, including IBM's PC and ACT's Sirius.

BL opens in US

THE software division of British Leyland, BL Systems Limited, recently opened a sales and support office in Boston in the US to break into the US market with its simulation packages. Last week BL Systems won two orders totalling £1 million, including one from Birmingham City Council.

MCS hits Anvil

CALIFORNIA CAD/CAM house MCS has implemented its Anvil-4000 draughting software, designed for 32-bit minis, on Data General's Desktop Generation. The Anvil 3000D version will be sold as a turnkey product for the first time and is equally IBM-mainframe and Data General mini compatible.

Circle's Opus

BRITISH CICS specialist Circle Software of Gerrards Cross, Bucks, has introduced an electronic spreadsheet called Opus for IBM mainframe users. It uses VSAM files and can be installed on DOS/VSE hardware with minimal CICS modification. Development is under way of MVS and VM operating system versions.

Nixdorf models

GERMAN manufacturer Nixdorf has brought to a financial modelling system Nimos interfacing to its Comet accounting programs. The software is to run on Nixdorf's 8870 minis, aimed at small and medium-sized businesses and departments of larger corporations.

Shared data

US software house Computer Associates has added to its IBM/CMS range with a tape management family of programs called CA-DYNAMICS. One program allows VM/CMS users to share tape catalogue information with OS and DOS users. The other improves VM/CMS file security through an automatic back-up.

Escape to Prime

IBM System 34 users are being invited to flee to the 32-bit compatible Prime 50 series, using a new software package called Escape 34 from Database Systems of Harpenden, Herts. Program author Paul Gillman claims that RPG-2 source code can be easily recompiled for Prime. New York bank Merrill Lynch is said to have "escaped" with this package.

CP/M for Olivetti

OLIVETTI is to put Digital Research's CP/M-86 operating system software on to its M20 microcomputer. The company denies any connection with criticisms of its own PCOS operating system and says it had always been intended to offer the Digital product. Work on development of PCOS is said to be continuing. Microsoft's MS-DOS is to be available soon.

Phenix to spread

SOFTWARE marketing company Sphinx is to distribute the Phenix accounting and business suite and Sibel language compiler from Software Ireland, the DEC specialist, which has adapted them to run under Unix.

Full micro Ada is on its way

by Philip Hunter

A FULL version of the military language, Ada, could soon be available in the UK on 16-bit micros, following announcements of new products and developments by leading chip makers. But some Ada experts doubt whether micro versions of the language will prove useful, and the more likely immediate development is to use a larger machine to compile the language.

Zilog has produced an Ada compiler for its 58000 Unix-based system, which uses the 28000 16-bit chip, and this is now available in the UK on order for about £6,000.

Intel, which dominates the 16-bit processor market, has announced that it is developing compilers for host on the top of the range virtual memory iAPX286 16-bit chip and its 32-bit big brother the iAPX386.

The Intel compilers will produce code for the popular 16-bit 8086 processor. Intel expects later next year to announce a full working version of Ada using the 8086 as host and target.

Ada is difficult to implement on micro because of its size and the huge amount of main storage needed to compile programs in the language. Program development is normally split into two parts with a larger machine, often the Vax, being used as the host to compile programs.

The compiled object code can then be sent to a target machine, perhaps a 16-bit micro, for execution and debugging.

The same machine can be used as the host and the target, but with military applications, for which the language was developed by the US Department of Defence, there is a demand for small portable processors to run finished programs.

Zilog is aiming mainly at this military market with its compilers, which the company says are now being tested by the US Defence Department.

So far only the US specialist in military hardware, Rolm, has passed the department's stiff tests with a commercially available Ada compiler. But other compilers are queuing up for validation, including products from Western Digital and the French company, Alys, led by the inventor of the language Jean Ichbiah.

Peachtree bites at Apple

MSA's micro software subsidiary, Peachtree, is turning its attention to the Apple market with the takeover of the Viask range of accounting programs.

The move is being seen as a significant switch of emphasis for the hitherto IBM-oriented giant of the applications world.

Peachtree's UK managing director, John Hale, agreed that it was late in the day to be aiming at Apple II users, but pointed out that many of these would soon be upgrading to Lisa and Lisa-like Apple products.

It is also hinted that MSA could be extending its IBM mainframe-personal computer co-operation, Peachtree, to Apple machinery.

Peachtree has bought the Viask Apple range — not the firm, Viask Computer Systems, of High Wycombe, Bucks — for an undisclosed sum. The programs, developed by Paul Viask's small team in 1981, have sold more than 5,000 copies. Four of the company's support staff will be joining Peachtree.

Apple's Lisa development team

Software File is compiled by George Black

Future is in UK to fight rivals

FUTURE Software arrived in Britain last week to try to undercut its rivals in IBM CICS applications programming aids.

Based in Utah and now with an office in North London, Future held seminars in London, Birmingham and York to introduce potential customers to its system.

The great list of data processing bosses was impressive: for example, in London Segas, Pirelli and British Telecom; in Birmingham Harvey's and the Export Credit Guarantee Department; in York Pilkington and Rowntree Macintosh.

Meanwhile a cloud hangs over the product they were all discussing, Software Generation Technology. Future bought marketing rights from SGT Corp, limited by

a clause fixing minimum sales. But Panosophic also did a deal with SGT for its code and Future filed a lawsuit against both of them, seeking \$115 million damages.

Last month a US judge dismissed Panosophic's claim that there was no case to answer and the action is scheduled to go ahead.

Interested parties thus have a quandary which Utah State summed up: "SGT offers the highest risk with the highest potential benefits." Utah opted to risk it.

Where Future and Panosophic agree is that SGT is a hot property. SGT president Robert Adamson is said to have received \$2½ million cash, plus \$2½ million royalties for the system from Panosophic.

Future's president, Bob Wall,



WALL... Touts SGT as a "Cobol replacement".

held the seminar the proof of its worth was that IBM itself adopted it for internal use at its New York credit branch rather than use its own software.

Wall touts SGT as a "Cobol replacement", emphasising that

Daisy is shooting up

TO the ordinary man in the street, computers and the amazing codes which make them run are pure gobbledegook.

To the ordinary computer programmer, the world of the semiconductor engineer, with its strange symbols and overlapping lines, must look a little like gobbledegook too.

Obviously it isn't, and to Aryeh Finegold and his team at Daisy Systems Corp in Sunnyvale, California, those strange symbols and lines are the source of the amazing growth the company has experienced since its foundation in October 1980.

Daisy Systems makes and sells a range of computer aided engineering equipment, which is widely used to help design microprocessors and gate arrays—the chips which incorporate key computer functions.

According to Finegold, most of the current crop of 32-bit microprocessors were developed on the Daisy Gatemaster, a truly amazing piece of software based on Scad, which orchestrates tests and finalises design processes for

semiconductor engineers. According to Finegold himself, the Gatemaster can speed up the rate of semiconductor development by reducing tasks that took one year to just one week.

If that sounds slightly miraculous, it's worth repeating what Finegold told *Computer Weekly*.

"I grew up in a country where you have to believe in miracles," he said. "You march 25 miles in the desert with a heavy field pack. You don't think you could. But you did."

"It's a question of will." Finegold was a PhD student in Israel when the war in 1973 interrupted his studies and forced him to don paratrooper uniform, fight and eventually become captain.

He has brought more than a little of the "survive or die" spirit to Daisy Systems.

"When I started hiring people for the company in 1980, I told them 'you will work 55 hours a week and every other Sunday; if you fall behind on your schedule, there is always Saturday'."

Yet Finegold got some of the

best engineers and project managers in Silicon Valley to join him, often for what he himself freely admits was miserable pay.

Fired by the visions of what could be achieved by actually applying computer techniques to the design of its own guts, Finegold proceeded.

From one room he moved to slightly larger premises that were furnished with \$30 desks from a real estate bankruptcy, and where the conference table consisted of two upturned Xerox boxes.

Fuelled financially by the proceeds of a mortgage on his own home, this got the company through its first autumn and winter. But by spring 1981 Finegold was stuck in the rut well known to so many small UK companies.

He was calling the venture capitalists, who were calling Stamford, who in the end didn't understand a word Finegold said.

He was losing management time at a life draining rate and seeing no sign of any money.

A friend suggested that he call a very well known venture capitalist

in New York, called Fred Adler. Adler told Finegold to come to New York, which led to Finegold's telling his future chairman that he didn't have the money to pay for the flight.

Adler paid, took Finegold to dinner and, having discovered two soft spots in the presentation, warned Finegold "never to bullshit Fred Adler again".

But, as Finegold proudly recalls, he put up the money without any more committees or consultations.

It took Adler 20 minutes to decide to sink \$3 million in Finegold, which must be about the best 20 minutes ever spent.

Adler's \$3 million investment is now passing through the \$90 million mark and shares are rising.

In 1982, Daisy did \$8 million worth of business and Finegold talks about \$300 million in sales by 1986.

So far this year, the market is favouring his forecasts. The third quarter just completed showed revenues of \$5.1 million — a 190% jump on the same quarter last year.



NORTHWOOD... Daisy might have a flotation in the UK.

Profits were similarly positive at \$669,000 compared with \$429,000 in the same quarter last year.

In the UK, Mike Northwood, the European general manager for Daisy, who has been back in the UK for just over one year, has sold 18 systems to such blue chip names as British Telecom, British Aerospace, Logica and Texas Instruments.

Northwood joined Daisy in its small enough for its acquire founder's share and work enough to make \$55 hours a week under him.

He said that one day he might even have his own office in the UK and each of European subsidiaries he set up will be an independent company.

Japanese look to long term in US

A NUMBER of Japanese companies have either expanded their operations in the UK recently, or are contemplating doing so.

Alex Stewart, a consultant with stockbroker Henderson Craswell, specialises in Japan and the Far East. He went on a round the world tour in an effort to develop a proper perspective on Japan.

His tour took him to the US, where he saw several Japanese companies.

He said that having dealt mainly in the past with Japanese companies, he found the openness and quality of information given at interviews in the US all the more remarkable.

American culture, according to Stewart, often seemed to be very muddled and superficial, but those handicaps disappeared when the subject was business.

In a delightful aside he noted that in relation to business the Americans had a definite capacity for intelligent exposition and clear analysis.

The Japanese companies he interviewed in the US he found were uniformly impressed by both the dynamism and speed of innovation in the US technology marketplace.

NEC's executive executives described the US scene as very rough and tumble, while Matsushita, selling micros and memory products, found the competition cut-throat, according to Stewart.

Despite those problems, however, the Japanese companies had established a complete dominance in the supply of key technology for use in the new media like cable TV.

Most cable TV systems in the US are not two-way. Both Warner Amex and Time Inc have independently designed an addressable head and converter which allows the subscriber to interact with the supplier.

In the case of Time Inc, Toshiba won the contract to manufacture the device, and Pioneer, another Japanese company, won the contract to build the Warner Cable.

Stewart pointed out the direct satellite broadcast of material in the US was not such a hot issue. "This is partly because most of America's urban areas are now wired for cable, and partly because no one can yet foresee how direct broadcast is going to develop," he said.

Stewart said that while all the evidence pointed towards innovation being alive and well in the US, a common sense of direction was lacking.



STEWART... "America has too many living heroes."

"America has too many living heroes," he said. "Some members of the US computer community understand the implications of the Japanese initiative, most do not."

"I still detected a surprising amount of complacency about the 'Japanese challenge'. After all, the Americans can argue there is no lack of local activity. What most of them fail to see, though, is that there is an absence of direction."

"It puts me in mind of the expression favoured by technology sceptics: 'Technology is the answer, but what is the question?'"

"America probably also has too many living heroes who have become legends, like Gene Amdahl; this, too, can create complacency."

"The Japanese observe Gene Amdahl more closely perhaps than anyone else, but not out of fascination, or even respect, but out of interest. If the American investment community fails to back Amdahl's ambitious supercomputer project which his new company Trilogy is spending on lavishly to develop, the Japanese almost certainly will."

"Such a development is not hard to imagine, because the Americans are notoriously short term."

Company News is compiled by Kevin Cahill

oriented, a fact I was able to observe at first hand, whilst the Japanese are becoming celebrated for their disregard of the short-term sacrifice if it will secure them a longer term goal."

Fujitsu

FUJITSU is Japan's biggest computer company and a critical element in ICL's survival plan.

Alex Stewart described Fujitsu as conditioned in the long term by what IBM does. He saw this, combined with Fujitsu's lack of experience in the consumer market, as a major disadvantage, forcing it to react to change rather than respond to opportunities.

When he visited the company, he found that his queries were dealt with on the basis of a one-way teach in, during which great stress was laid on the three Cs: communications, computers and components.

These, he said, were described as the three legs of a stool, but no clear indication emerged of how the stool was to be balanced. At present, computers still account for two thirds of revenue, whilst the other two Cs account for one third each.

Moreover, Stewart noted that by computers Fujitsu still meant systems that started at 4-5 million yen.

Thus, despite the confident talk, the company was still a mainframe maker, at a relatively early stage of diversification into what is described as "downstream OA" (office automation).

Stewart said that Fujitsu had hitched its wagon to a changing star, namely IBM. The future of data processing looked increasingly set to shift out of the DP departments of large companies, he said, on to desk-top looked up to a network with only a small minicomputer controlling traffic and a large memory storage system to store data.

Moreover, the office computer and home computer market looked ultimately set to merge, so that the basic computer would become little more than a commodity like a calculator, depending upon function (software), distribution (consumer consciousness and marketing), and supported by good communications and good microprocessor and semiconductor technology.

This brought Stewart to one of the few items of praise he spared for Fujitsu. The company, he said, had important semiconductor technology.

OKI, little known outside Japan other than as a semiconductor

supplier, has recently come to prominence with deals with two American companies.

From being a vendor of computers, OKI this year created a manufacturing deal out of its long time partner, Sperry Corp.

The deal so far looks like a simple manufacturing licence, but several commentators have hinted that this is in fact Sperry moving its own computer manufacturing out of the US and OKI taking the first steps down the road to its own mainframes, a long nurtured ambition of the company.

The second deal, which Alex Stewart looked at from a slightly different angle to that taken by other commentators, is with National Semiconductor and involves an adoption by the American partner of the Japanese company's very advanced 64K technology.

According to Stewart, the deal might be a case of OKI transferring expensive mass production knowhow to the US partner in order to allow itself to concentrate on products to establish a market niche.

Toyo

WESTERN markets will see little of products that carry the Toyo label directly, but the products will be selling under the NEC label.

NEC Corporation is the effective parent of Toyo, which is independently quoted on the Tokyo stock exchange.

Fifteen per cent of all Toyo's production goes to NEC and most of the financial terminals and a proportion of NEC's public and private telephone exchanges come from Toyo.

Last year Toyo sold just 300 million yen of banking and financial terminals to NEC, but this year the company is forecasting a 300% increase in deliveries through NEC to one billion yen.

Although Stewart noted that much of Toyo's production went through NEC, thanks to a breakthrough in the mobile telephone market in Sweden where NEC was the biggest supplier to the main private contractor, he said Toyo had begun to do its own market research, perhaps presaging a development of own brand selling.

Pioneer

MOST people know Pioneer as a hi-fi supplier, which overlooks the fact that the company is involved in video disc storage development with IBM and is a major supplier of technology to the Warner Amex cable TV system.

Stewart described the atmosphere at Pioneer as very much more positive than when he saw the company in the autumn of 1982. It is showing a month-on-

month gains in sales volume and after a near disaster 1981/82 is showing real signs of a sustained recovery.

Pioneer is developing direct read after write optical storage technology.

There is some technical development with IBM, but Stewart noted that Pioneer now had closer ties with another US company, so far unnamed.

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Sumitomo

SUMITOMO Electric Industries is large, linked to NEC via the Sumitomo group. The company is most widely known as a supplier of copper-based telecommunications

cable. That said, Sumitomo Electric is running out 10,000 kilometres of fibre optical cable a month — only half the plant on stream.

In addition the company is the biggest supplier in the world of gallium arsenide semiconductors.

So far, sales of gallium arsenide materials by Sumitomo have reached three billion yen a year, but forecasts to rise to 15 billion within five years.

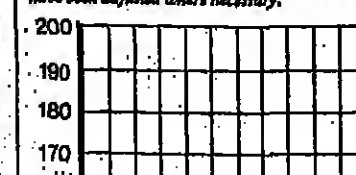
Sumitomo recently achieved a major breakthrough in producing single crystals of gallium arsenide, which will bring closer and cheaper the use of laser light in small scale devices.

Shares Table

The shares table, which is specially compiled for Computer Weekly, details computer companies that reflect the state of the computer industry.

Pence	London Stock Exchange	Pence	US Stock	US Stock
High	Low	High	Low	High
120	115	120	115	120
110	105	110	105	110
100	95	100	95	100
90	85	90	85	90
80	75	80	75	80
70	65	70	65	70
60	55	60	55	60
50	45	50	45	50
40	35	40	35	40
30	25	30	25	30
20	15	20	15	20
10	5	10	5	10

The table shows the mid-day prices in London on Friday and the closing prices in New York on Thursday. The share index is based on the prices of the UK companies in the table. Figures have been adjusted where necessary.



Index movement

Apr May June July Aug

100 110 120 130 140

11 18 25 9 16 23 30 6 13 20 27 4 11 18 25 8 15 22 29

Apr May June July Aug

ICL's Computerland coup refreshes DRS

THIS agreement signed last week between ICL's Trader Point division and the massive Computerland retail store franchise organisation is a coup for ICL and a welcome boost to the DRS 20 distributed micros.

It is also good news to Computerland. The chain, which is adding to its 456 franchise micro shops at a rate of one every other day, now has a machine to offer its franchisees that will plug a gap at the top end of its range.

"I think DRS 20 will find good take-up," says Computerland Europe's managing director Chuck Hansen.

"It hits part of the market that hasn't been hit by other manufacturers. There are multi-user, multi-tasking machines around, but they are complicated and not user-friendly. And each operator is affected by what the others are doing."

"DRS 20 is very easy to use, and transport, in its multi-user capability. That hasn't existed before."

From Computerland's point of view, dealing with a manufacturer like ICL has great advantage.

"We definitely prefer global agreements and are looking to expand ones like this ICL deal," says Hansen.

Last week's was only the third agreement between Computerland and a manufacturer covering all the markets Computerland sells in. ICL is the only one of the three based in Europe.

"Agreements like this allow our stores to offer the same products and services worldwide," says Hansen. "It means you don't get tied up by local restrictions."

"We don't want to be stopped from taking products worldwide by exclusive distribution agreements. Manufacturers with their own representation make it easier for both sides."

One advantage he picks out particularly is the ability for the supplier to give customer service and dealer support beyond the normal limits if it should be needed.

It is much better for a customer who has problems with equipment to be able to go to the manufacturer's own representative in the particular country rather than having to deal at arm's length.

But however great the enthusiasm for the ICL deal from Computerland's control organisation, it is the franchise that will determine the success or failure of the DRS 20s through the stores.

"The central purchasing function at Computerland means we can offer a price advantage to our franchisees. But the stores can take what they want," says Hansen.

It was the interest shown by stores at a European franchisees' conference in March that led to the deal between Computerland and ICL.

"It was a question of both bumping into each other," he says. "ICL walked into one of our stores — we were not aware that it had a product in the right range to interest us, so we took them to the March conference."

"The people there were in-

terested, so we struck a deal."

ICL will be taking the DRS 20 models 10, 25 and 50 to the international stores conference in San Francisco this week. There store representatives meet to evaluate products and vendors.

Hansen reckons it will be one or two months before the machines will start appearing in the stores in quantity, because of the time needed to train people in the kit. But when it does get going, the machines should go well, giving ICL's US sales of the DRS 20 range a particular boost.

At the moment, the bulk of the stores are in the US — 350 out of last week's rapidly increasing total of 456 — but Hansen sees international sales and numbers of stores in Europe overtaking those in the US in the next five years.

"There is an explosion in Europe," he says, "with what is expected to be the fastest growth in the UK now. But Germany will probably have the largest number of stores of the European countries in the long run."



HANSEN... "DRS 20 will find good take-up."

Losses cast doubt on US home computers

by Kevin Cahill

AS Texas Instruments reports even worse losses than it forecast last month and Warner Communications sinks under the weight of its Atari debacle, big questions about the future of home computers are beginning to be asked in the US.

Texas Instruments forecast losses of about \$100 million for the quarter ended June 30, but in the event came in with losses of \$119 million, a forecast of a loss for the year as a whole and a series of lawsuits from brokers who say they were misled by optimistic predictions being made by the company not much more than four months ago.

There has been no bloodletting at Texas Instruments yet, but Warner has fired the Atari chief executive of five years' standing and a further shake up is not ruled out at the one-time high flying high tech company.

Analysts are suitably confused by the situation and there have been recent rumours that Atari, attempting to make a comeback later this year with a raft of new products, is facing delivery and cost problems.

Both Atari and the home computer division of Texas Instruments are caught in the middle of a huge lengthening of delivery times for memory chips, alongside a sharp rise in price for basic components.

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Sinclair microdrive arrives

by Nuala Moran

THE Sinclair microdrive, promised for the end of 1982, has finally arrived. Based on a Sinclair-designed, Ferranti custom built chip, the ZX microdrive will store programs, blocks of code, arrays and data files on removable magnetic cartridges.

According to Nigel Searle, Sinclair's managing director, "microdrive has a capacity normally associated with a disc drive". It costs £49.95.

The cartridges, which cost £4.95 each, have 85Kbyte capacity and can hold up to 50 files. Using microdrive a 48K program can be loaded in nine seconds, compared with nine minutes for a conventional cassette.

Each file can be individually identified and automatically sorted with access to any file typically taking 3½ seconds.

Up to eight microdrives can be linked to each Spectrum, giving a total capacity of 680Kbytes.

They are controlled by the ZX Interface 1, also announced last week. Apart from being a controller, it has an industry standard RS 232 interface, which means the Spectrum can be linked to other computers and peripherals.

It is also provided with leads to set up local area networks linking up to 64 Spectrums.

Interface 1 will be sold with microdrives for £29.95, or by itself for £49.95. Interface 2 will follow this autumn and enable Spectrum

Losses cast doubt on US home computers

by Kevin Cahill

AS Texas Instruments reports even worse losses than it forecast last month and Warner Communications sinks under the weight of its Atari debacle, big questions about the future of home computers are beginning to be asked in the US.

Texas Instruments forecast losses of about \$100 million for the quarter ended June 30, but in the event came in with losses of \$119 million, a forecast of a loss for the year as a whole and a series of lawsuits from brokers who say they were misled by optimistic predictions being made by the company not much more than four months ago.

There has been no bloodletting at Texas Instruments yet, but Warner has fired the Atari chief executive of five years' standing and a further shake up is not ruled out at the one-time high flying high tech company.

Analysts are suitably confused by the situation and there have been recent rumours that Atari, attempting to make a comeback later this year with a raft of new products, is facing delivery and cost problems.

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PROFILE

A year off—to get back to the start

NOT every day does a successful marketing manager of a major minicomputer manufacturer announce that he is to take a sabbatical year off, and then move out of the computer industry.

Richard Norton, marketing director of Norwegian company Norsk Data UK has done just that. He hankers after the excitement of pioneering and starting up a new company—but not in computing.

"The computer industry is oversubscribed," he explained.

by John Riley

"Starting from scratch in computing now is much harder than it used to be. Although computing is still at a primitive stage, it is not as primitive as 15 years ago.

"Of course, start-ups are still possible—Sond has shown that—but it is getting more like other industries. For example, it wouldn't be possible to make a production model car from scratch quickly any more, although you could in specialised areas, such as making a new Formula 1 racing car."

That is why Norton is taking a year off to study the potential for start-up companies in fields that are at the stage computing was at 15 years ago. Areas he will be looking at in particular are biotechnology and leisure, but he insists he is keeping an open mind.

Norton has three start-ups already under his belt. "The first was a disaster," he said, "but I learnt a lot from it. The second

was successful, but was taken over." The third, set up in 1977, was an independent distributing company selling Norsk Data equipment. By 1980 it had a turnover of £1.3 million and was bought up by Norsk Data, and formed the core of Norsk Data UK.

"It is the stage between anarchy and professionalism that appeals to me," Norton explained. "In the first phase of business you get the chance to do things as you think they should be done without inhibitions. After that it is more a question of polishing and polishing."

Norton is taking a year off so that he can plan his next move. He pursues heavy emphasis on planning. "Planning is the important thing and it must be top notch to succeed," he said. "The computer industry is easier than most, as everyone can succeed by thinking and doing. The only computer firms that have gone wrong are those that have not thought out what they should be doing."

Working with Norsk Data has been a challenge for Norton. So far he has sold over £2 million worth of ND 32-bit superminis to the Joint European Torus (JET) nuclear fusion project based in Abingdon. "We tackle impossible jobs," he said, "especially high value projects where obtaining results is more important than cost."

For Norton, cost is not the most important criterion for machines. "Some companies concentrate on the cheapness of their products,"



NORTON... "The computer industry is oversubscribed."

he said, "but we put ourselves across as European suppliers who are not necessarily cheap, but good. Customers prefer to pay more if performance can be guaranteed. The proof of that is the state of the secondhand computer market. There are a lot of secondhand machines about, but virtually valueless—nobody wants them."

Norton regards Norsk's main rivals as Digital Equipment "for the quantity of machines", and Prime "for its involvement in engineering". But he has no worries about US marketing taking away business. "It is the product that is important. If you have a good technical design you will win through. Norsk Data's research and development staff are

loyal and as we have a common operating system, they are working and re-working on the computer development continually as one group."

Before starting up a new company Norton intends to travel round the world exploring possibilities and to plan ahead thoroughly. But the first thing he intends to do when he leaves Norsk Data is to take a holiday in Norway.

His final comment on computers was "Computers don't do what people want them to do yet, do they? They are a basket of frustration as people are always on the edge of the impossible to their expectations."

PLATFORM

This Platform is based on a speech by Bill Read, Sperry vice-president and general manager, computer systems operations, at a recent seminar.

'By 1990 there will be no national computers'

BETWEEN now and 1990 the computer industry will change in a number of ways. It will become recognised that there really is no such thing as a national computer.

The computer might be assembled by a company whose equity is 100% owned by a given government or within a country, but the hardware will be international with components from at least two or three countries being incorporated in the system.

This means that the "Buy British" and "Buy French" exhortations will be even more open to question than today because, certainly as far as the hardware is concerned, the national content will be minimal.

We will clearly see further growth of the Japanese encroachment. We talk about it today, we see it happening, but in the period I am referring to it will be highly developed. We may well see a situation where virtually all RAM chips come from Japan, with odd exceptions such as the UK government-backed Lumec venture.

Essentially, the trend in hardware will be to various forms of licensing agreements, with the US and the Japanese the main providers of hardware.

Obviously, indigenous suppliers will try to put in a quota of locally produced components. But there is little doubt that the vast majority of hardware will be manufactured by American or Japanese companies.

To emphasise this hardware trend, I think the position will be that, regardless of whether the device is a low-cost, chip-based terminal or a major manufacturer's mainframe, it will contain a much larger proportion of internationally made elements than hitherto.

Therefore, no vendor, including the Americans and Japanese, will have a major fully localised—that is one country made—hardware product series.

I have always forecast that the minicomputer was in for a bad time, that it would be the marginalised between the mainframe and the micro. There is little doubt this is happening. We have already seen the beginnings, and, by the end of the decade that the traditional mini that we knew five years ago will be dead as a commercial DP box.

Another important trend in our industry is that instead of providing only the hardware and its operating system, manufacturers now aim to market a wide range of applications and similar software as well.

The traditional mini suppliers who sell low-cost, high performance hardware with substantial discounts to third parties or software houses, now realise that they can no longer be involved with such discounting.

These mini suppliers are beginning to realise that their future is in the sale of applications programs and allied software. We all forecast that the revenues produced from hardware would go down. However, I do not think that many people realised how necessary it would be to boost revenue by means of software and



Bill Read

applications programs. Or he difficult it is to do this effectively.

To those who doubt this argument, let me point out that IBM realises that it has been let by its own petard. For years IBM strength was the vast quantities of software available from software houses. Many a user has said that one of the reasons why they were buying IBM hardware was the abundance of software available, albeit not produced by IBM.

This is now causing IBM major worry because it means that, even allowing for substantial hardware costs, the argument is true. To offset this problem it has to get fully into the software business at the application level.

This will not only be a major move for IBM, but will also place jeopardy many of the software houses which have made a highly successful business out of being complementary to IBM's policy. Distributed processing has far failed—that is, if it is about true DDP (not dispersed processing), meaning multi-linked computers to other mainframes and minicomputers. Not such systems exist today.

This is because of many things—the cost of telecommunications lines, availability of suitable hardware and software, processing of trained people and the difficulty of control.

But by the end of this decade I do not believe we will see all the appropriate ingredients. Lines will be available, but probably not in sufficient quantities, low-cost equipment will be with us and, therefore, at last, we will be able to have the best of both worlds.

I believe large mainframes will be needed, particularly in defence and number crunching environments, but also for handling the effective distribution and processing of data. This will be done in conjunction with a major computer complex, giving control and cohesion to the system, making remote elements of a network. And these elements themselves will be quite powerful computers, able to communicate with other units in the network, either directly or via the central mainframe. Thus we will achieve what everybody has desired and, I think, what we ought to have in an ideal world.

Probably the most important gradient when discussing the future of mainframes, mini and micro is cost. So far, suppliers of medium to large computers have introduced new hardware at about the same price as earlier models, but with three or four times the power. This means that prices have remained high, but the future we see the power going up by the same orders of magnitude, but costs will come down.

One of the main reasons Sperry has bought into the micro company is certainly not to enter the plug-compatible market, but because we wish to acquire advanced technology which will enable us to achieve the results I have just described.

Bill Read

10 YEARS AGO

FROM COMPUTER WEEKLY OF AUGUST 2, 1973: A report in the National Electronics Review urged a government "Buy British" policy wherever possible... A new disc subsystem with a capacity of 200 megabyte per drive was announced by IBM... An official IBM was given to IBM shares on the London Stock Exchange... profits of \$42 million were announced by Burroughs.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, August 4, 1983

Communications? We can't hear

THE UK's backing of World Communications Year (WCY) looks less than wholehearted.

A half-hour film launched last week is a proudly proclaimed as a substantial part of the effort that the UK is directing towards the outside world during the campaign.

And the Year's UK committee chairman Sir Donald Maitland went as far as to point out that the UK had anticipated World Communications Year by designating 1982 Information Technology Year.

Yet, having started the year with the IT Year campaign mechanism still in place, the campaign has had almost no visible impact.

When the United Nations General Assembly announced the designation in 1981, officials pointed out that there were currently 40,000,000 people dying every year of starvation. This was more than the numbers killed in all the atrocities ever committed by human beings on each other since history began.

Telecommunications could make these deaths preventable, the officials said. Perhaps this claim has overwhelmed us because, according to the Department of Trade and Industry, Communications Year activities in other countries have been even fewer than the barely visible UK ones.

Of the 60 UK companies planning to exhibit at Telecom 83 in Geneva, only a handful appear to have shown any interest in the WCY campaign. The main activities have been training for engineers from developing countries and lending equipment for display in the WCY Communicator and in the DoTI's two mobile display booths.

When the UK programme was announced in January, its two main objectives were said to be to reinforce public awareness of communications needs and possibilities and to investigate new ways of transferring resources from the UK to developing countries with the maximum benefit to both sides.

It seems that public awareness has still to be reinforced and ways of transferring resources have still to be found.

As one DoTI official said, production of the film was justified on the grounds that it was promotional material that would benefit UK industry. It was easy to criticise the UK contribution to the campaign, he added, but a great deal had been done on a very small budget.

The question is, why was the budget so small? Does nobody outside the UN General Assembly believe in the value of telecommunications to anyone other than telecommunications equipment suppliers?

Help the micro men

IT is no wonder that the European Economic Community leaves many people cold. While the conception of the community can hardly be faulted, the execution on so many vital issues makes one wonder if the whole enterprise is worth it.

The latest clarification cry comes from the British Microcomputer Manufacturers Group, which is threatening to take its manufacturing capacity overseas unless there is a relaxation of the EEC tariff on component parts.

Duty rates on component parts are 17%, while typical rates on imported systems and sub-assemblies are only 6.5% to 7%. The result is that one of the UK's more successful industries could move its assembly plants offshore.

The BMMG, which last year put its foot in its mouth with a call for a 12-month ban on US and Japanese imports of micros, has now latched on to an issue of real substance. At a meeting with Information Technology Minister Kenneth Baker, the BMMG had a sympathetic hearing. But there is a general feeling of gloom among UK micro manufacturers when they talk of an early solution to the problem.

The government already has its hands full in its current negotiations with the EEC. It is feared that the call by the micro companies for immediate action on component duties will not find itself high on the list of ministerial priorities.

It should. The UK's manufacturing is decreasing. Although there are those that would argue that it is a natural development, it is a far from proven theory.

The message is clear. Will the government do more than listen?

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by Philip Dobson of London, who wins £5. Although computers are now a familiar aspect of our daily lives we still view their power with alarm... we fear that one day these silent but awesome machines might one day take us over completely.

LETTERS

The Europeans should listen

IN your editorial (Computer Weekly, July 21) some interesting facts were stated. One country, Japan, has captured 40% of the world market in the field of microprocessors. A group of countries (probably containing some of the best brains in the world), that being Europe, not only manages to spend twice as much, but secures 30% less market share.

Perhaps the fundamental laws of

marketing and sales should be looked at. A superb example is the automobile industry, of course. The Japanese have been supplying what the market wants, not what they want to supply. There is a difference. It is very basic and all about supply and demand. Identify the market and produce products that will be welcomed in that market. Then, with the energy that the Japanese apply, go out and sell it!

Until the European computer industry recognises the facts and actually does something about the situation, in 15 years time your editorial (probably by that time available at home on a Japanese micro) will report a far worse picture, if that is possible.

SIMON LEVER
Partner

Recruitment Partners
The Hague.

Reminder of real users' needs

THANK you for an excellent article (Computer Weekly, July 21) by John Lamb. It raises the point to me that many people "in the trade" get too close to their speciality.

His points about direct savings, straight replacements, easy to measure projects and the Office of the Present struck home.

I also like his acceptance of a piecemeal approach.

It struck me that I needed more often to be reminded to stand on a hill to see how the battle was going. Keeping your head down

creates a mole-like attitude. Could we have more short articles on this level please, to remind me about real users' needs?

On the other hand, I know little about other people's specialities. Most companies have enough difficulties sending staff on job related training schemes, let alone justifying excursions into someone else's patch. Hence we lose touch unless we assiduously read articles by an expert for others.

Is there any way that, say, a training group could review the present state in a field once a

month, so that the computer specialist could read about other fields that just may colour his, or his user's world?

The computer will spread into all walks of enterprise and we who are assumed to have superior knowledge need at least to be one page ahead. The true expert may feel obliged to write to you concerning a heinous misunderstanding which must be corrected from his specialised knowledge.

H. McDOUGALL

Newburgh
Wigan.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

Poplog is well

READERS of Dr Bailey's letter (Computer Weekly, July 14) may be as puzzled as I was at his reference to "Surrey's Poplog".

The Sussex University Poplog system on which you have kindly reported in the past is alive and well.

The problem of excessive garbage collection in Prolog has been solved. We expect shortly to complete arrangements for Systems Designers Ltd to take over marketing and maintenance.

DR AARON SLOMAN
Cognitive Studies Programme
University of Sussex.

Missing zero

WHILE it was very interesting to read your slot in Micro News on the Alpha Micro (Computer Weekly, July 21) there was unfortunately an error which spoiled the whole article. The new Alpha Micro series is based on the Motorola 68000 not the 6800, a vast difference in speed, size and technology.

DEBORAH L. COSTIN

Systems Advisor/Programmer
Sweetens Computer Services
Bristol.

68000 runs in the original copy, but a night was dropped at the printer. Sorry.

DOWNTIME

In a class of its own

GREAT Useless Ideas come in all shapes and sizes and IBM's artificial intelligence program, currently under way at its Yorktown Heights research labs, has produced a real cracker.

The boffins of the world's leading consumer of blue paint have come up with a program which can recognise the user's social class.

Called Epistle (Evaluation, Preparation, and Interpretation System for Text and Language Entities—the acronym division must have worked overtime on that one), the program can evaluate a letter, document or memo and analyse the writing style, syntax and construction.

IBM's excuse for the de-

velopment of this wonderment is to highlight what it deems to be "appropriate style" in reports prepared by its managers (probably a reference to white shirts and plain ties), but points out that the system can also be used to determine the social origins, politeness(!) and character of the writer.

And the little beastie can go further. Its developers claim it will eventually be able to deduce the intelligence, assertiveness and refinement of the writer, plus his/her sex and age.

This would be of great benefit to us here at Computer Weekly. On receiving yet another letter signed J. Smith, we would be able to discover its sex, sexual proclivities, bank balance and vital statistics.

What's in a name?

DOWN at the Department of Trade and Industry (DoTI) to the rest of us but for some reason they prefer DTI they take these things seriously.

And when it came to picking a name for the UK's grand scheme to pip the Japanese at the post and get the country back into the top end of computer development, there was some scratching of heads before the pin-stripe brigade settled on what the rest of the

world was already calling it, "The Alvey Programme".

So much has this caught on that British Telecom's John Alvey, who wrote last year's report which started the ball rolling, was heard to say about some Buzby development: "We should get some money from Alvey for this."

How long before Alvey Programme supremo Brian Oakley becomes known as "Mr Alvey" just to confuse the issue a little more?



"Surely there's more to life than being the very stuff of which computerised mailing lists are made."

Exclusive story

COMPUTERISED mailing lists are an abomination. I have received a massive from Scotcad, the mail order lot.

Printed in simulated handwriting on the envelope is the legend: "You're Exclusive."

On the address label is a number with seven digits.

Scotcad has obviously unearthed some new meaning of the word "exclusive" which has, up to now, escaped my notice.

Fast buck invention

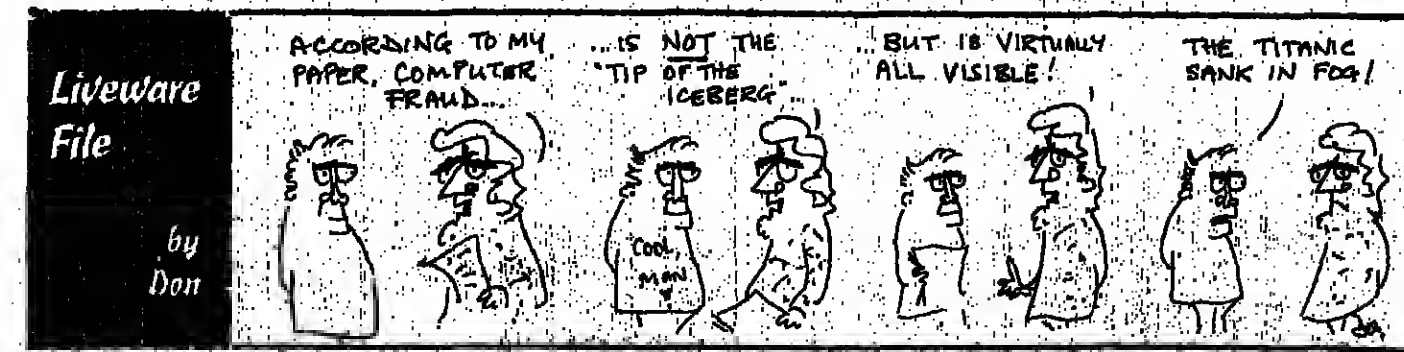
LET'S hear it for computer entrepreneur Pat McNulty. The Pittsburgh inventor has a vision: metered computer terminals in hotel lobbies, airport waiting rooms, and other public places.

McNulty, the fast-talking good-natured head of Pittsburgh computer consultancy Data and Research Technology Corp, proposes to attach standard computer terminals to vending mechanisms which will accept a dollar or \$5 bill. A dollar will buy three minutes of time on any computer network to which the user has a subscription.

—and \$5 will buy 15 minutes. With increasing numbers of US hostilities contemplating installing terminals in their rooms, how does McNulty figure to make any money?

Easy. "Say you're in a bar in a hotel and you suddenly want to make a phone call—do you go up to your room to use the phone?" McNulty asked Computer Weekly rhetorically. "No, I'll be the same if you want to check your electronic mail—you'll do it at the bar."

Chad



For more information return this coupon to Ian Hardman, Peripherals '84, Room L216, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

Name _____
Position in Company _____
Company _____
Address _____
Tel: _____



WORKPLACE

Super power comes to two university centres

BRITISH university computer users will soon have access to a pair of the world's leading supercomputers, as a £16 million plan to re-equip the UK's two regional computer centres nears completion. The University of London Com-

puter Centre (ULCC) which mainly serves universities and teaching hospitals in the south, has just installed a Cray. And the University of Manchester Regional Computer Centre will shortly install a Control Data Cyber 205, the

only credible rival to the Cray.

The two centres were set up in 1966 following the Flowers Report recommending three powerful regional centres of computing for universities. London was to serve the south, Manchester the north and Edinburgh, Scotland.

Edinburgh has remained a regional centre with a range of smaller machines concentrating on interactive computing. But both Manchester and London have spread their load and now cover the whole country between them.

Universities have their own computers, and many in the big centres to solve the large mathematical problems that crop up in such things as meteorology and high energy physics.

The two big regional computing centres now overlap in their coverage, and some universities - Oxford for instance - already have access to both. Part of the £16 million re-equipment plan involves networking, with the aim of producing a single academic network based on the Open Systems Integration model, with packet switching.

Richard Field, director of ULCC, says the networking development is well underway and should be finished next year or early in 1985. Then individual universities will be able to link up together.

"We will set as a switching centre for people who want to go to the Distributed Array Processor (made by ICL) at Queen Mary College, for example," says Field.

There will be trunk routes linking the big centres, like London and Manchester, and smaller lines joining other universities. Aberystwyth and East Anglia will

not often want to join hands, points out Field.

London and Manchester each put up proposals for new equipment, but came up with different conclusions. Manchester decided to stay with Control Data hardware, buying the new Cyber 205 super computer, and keeping the two existing 7600 mainframes in support.

"Our plan was to flush through with a new set," says Field. The only real disadvantage of this was inconvenience to existing users, who had existing software packages written for Control Data hardware.

But, as Field points out, Cray computers were designed by Seymour Cray, who used to work for Control Data. The two makes of supercomputer have more similarities than differences, and the two operating systems are quite alike.

A bigger problem was posed by the choice of an Amdahl 470 V8 to act as a front-end support processor to the Cray at ULCC. This machine was designed by Gene Amdahl.

The operating system is therefore quite like IBM's and has forced some users to do hefty rewriting for the smaller problems that do not justify use of the Cray.

Field says that since Cray only has two ranges of supercomputer in its hardware arsenal, it has designed the machines to run medium-sized as well as large programs.

The main software running on the Cray at ULCC is the NAG library of mathematical Fortran programs, which has been adapted to take advantage of the vector processing available on the machine.



FIELD... Flushed through ULCC with new hardware.



TROTT... Quality of service depends on number of users.

Enter stage left - a system to settle actors' fees

TV COMPANIES and advertising agencies will soon have a computer solution to the growing problem of paying freelance actors, camera crew and musicians.

IDC Services, the US data processing specialist in the entertainment industry, is setting up a UK subsidiary which will open a London timesharing bureau this autumn.

The bureau will provide a central clearing house for payments to freelance actors employed for films, documentaries or commercials.

Many manufacturers are already implementing screen management facilities with Cobol compilers. "It makes you wonder why we bother," says Gwillim.

But there is one piece of good news for Gwillim. From this September she will be UK secretary for the Codasyl group. "This will mean more liaison between the UK and US," she says.

programming and operations manager.

When making a programme, TV companies might begin by using the "talent". Then the programme is produced, transmitted and repeated, and the TV company supplies relevant data on the people involved and the time spent to the bureau, which then issues invoices to the appropriate contractor, often the TV company itself.

The bureau also makes payments, and supplies information to both the film or TV company, and the union representing the actors. The bureau could also be a separate agency - except that the union is more complicated because it might also be a separate agency to produce the commercial, as the TV company from time to time.

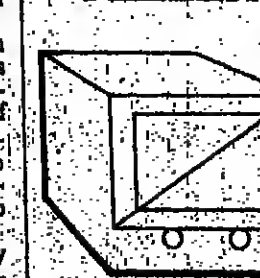
The bureau will later be extended into a full accounting system to record costs and payments to people known in the industry as "talent staff". But these systems have proved hard to maintain because of the maze of different pay rates which also frequently change, and the headache of keeping track of repeat fees, payable when a film is given a second run by a different television company.

The problem is well suited to a bureau solution. The advantage is in keeping a central database of performance records. But the success of the bureau depends largely on how many TV companies, advertising agencies and film-makers take up the service.

The more people use the bureau, the better the service becomes, explains Bob Trott, IDC

Workplace is compiled by Philip Hunter

PUZZLER



THIS clever route from Japan. The task is to take the arrowed line through the complete "maze" just one continuous line taking your pencil off and without going over the line twice. Of course, the same point may be visited twice. Only one line is possible, so the problem is to find it. See page 11.

EDUCATION AND TRAINING

Estimates put the shortage of skilled staff at 40,000. David Casey asked Sir Keith Joseph what he was doing about it

Why is it still so hard to find skilled computer staff?

THE biggest problem facing the UK's computer industry is shortage of people. Small and large companies all confess to the difficulties of finding and hiring the skilled staff that they need.

The last authoritative study of the shortage of "computer skilled people" was made in 1980 by the National Economic Development Office. It reported that the UK was 23,000 short of the trained people that it needed: 16,000 programmers and analysts and 7,000 engineers. And the report predicted that the shortages would increase.

Current estimates of the shortage of programmers and analysts alone run to as high as 40,000.

Hard figures are difficult to come by, but there is little doubt that the shortage of staff has increased since 1980 in spite of the recession and of government efforts through the Manpower Services Commission, the University Grants Committee and the computer services industry training board to train larger numbers of people in computer skills.

David Casey interviewed Sir Keith Joseph, Secretary of State for Education and Science, and the Cabinet Minister responsible for the country's efforts to provide the people to build its computer industry.

The government has not been slow to recognise the long term potential of computing in schools. A scheme funded by the Department of Trade and Industry, for example, is ensuring that schools have access to microcomputers.

Reports from the Educational Broadcasting Council indicate that there were an average of three micros in every secondary school last December; a figure which has now risen to 4.3 units.



JOSEPH... Has the ultimate responsibility.

As formulator of educational policy, the Department of Education and Science has the ultimate responsibility for ensuring that there is a sufficient flow of technical talent from secondary schools into further and higher education.

The department's Microprocessor Education Programme - now into its third year - has the onus of training teaching staff and advisors.

To date, 20,000 "front line" teachers have passed through the scheme's net, with budgets agreed for a further 10,000 to be trained in this financial year.

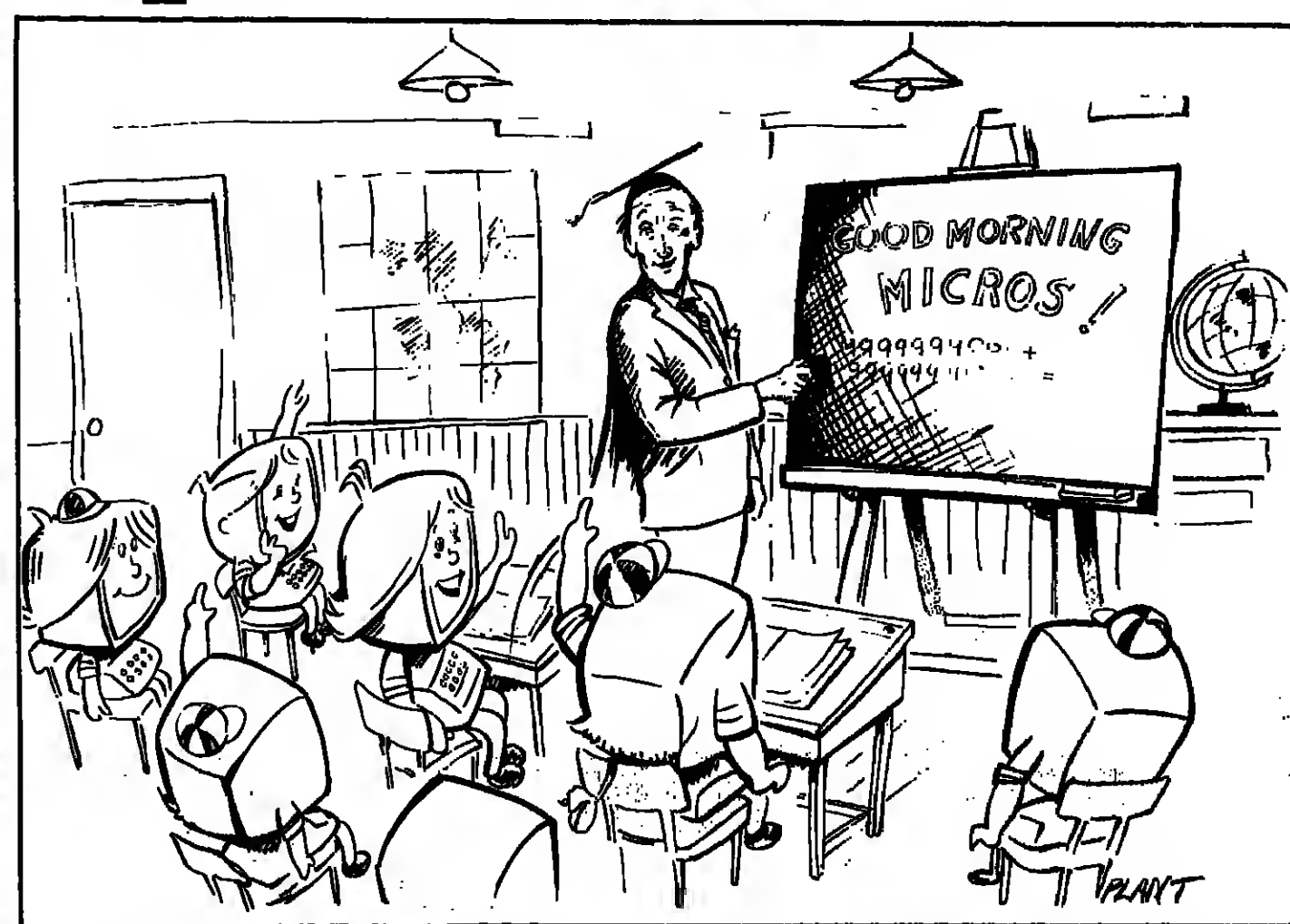
Sir Keith Joseph, Secretary of State for Education and Science, accepted that there is still a long way to go in the schools sector. "The Microprocessor Education Programme has already proved a stimulus to teachers," he said, "and there is a great deal of spontaneous pursuit of knowledge on their part."

"Some of the extra places we are providing in higher education for computer specialists will be taken up by those proposing to teach and will therefore help overcome the shortage of qualified staff in that field."

The traditional route into school teaching has been from training college and university. Irrespective of the academic merits of the people who are "called" to the profession, their industrial or commercial experience is noticeable by its absence.

An injection of teachers from the real world, outside education, could add an extra dimension to classroom courses in physics, mathematics and business studies - all subjects important for the development of high technology.

Sir Keith recognises the value of teachers switching from a career in industry or the professions, but prefers to let market forces take



their course.

"As redundancy increases, more staff with the right kind of background will move into school teaching. We do not feel the need at the moment for a scheme to select potential teachers from industry," he said.

The secretary school certainly has a seminal role in preparing young people for a future in technology. But it is the higher education sector that must take the strain of education and training in the subject, at a time when these establishments are now into their second round of expenditure cuts.

The University Grants Committee (UGC) is a buffer between the Department of Education and Science (DES) and university funding.

However, the decisions taken by the UGC from time to time may not be in line with the government's own plans for stimulating the growth of high technology.

Speculation about the future of university finance is rife. Centralised control by the DES is one possibility being mooted by academics keen to maintain funding for high technology projects.

The setting up of a single paymaster authority to encompass both universities and polytechnics is another prospect being viewed with disquiet in senior common rooms, an undignified scrap between the theoretical and applied disciplines for a share of the available finance could not be avoided.

The Secretary of State is unaware of any developments that would radically change the present system of funding. "I am certainly not conscious of any such ideas," he said.

"For 60 years now, successive ministers have valued the taxpayer's money so that the politicians

and higher education can be kept apart. There is no thought of bringing that buffer to an end."

Sir Keith Joseph illustrated how this philosophy has been extended to other sectors of education: "In the polytechnic world, we have the local authorities to act as the buffer. What we have done there is to create, through the National Advisory Body, a mechanism equivalent to the UGC for appraisal and judgment."

While a university finance authority is likely to remain, changes can be expected in the funding arrangements of the establishments under its control.

Sir Keith outlined the government's intentions: "We openly aspire to increase the diversity and the freedom and the decentralisation of these institutions if we could find ways of doing it."

"We would like, for example, the universities to become less

dependent on the taxpayer and therefore less dependent on the UGC."

One method of generating independent finance would be for the universities to undertake the major part of central government research as a commercial contractor. Sir Keith sees this as just one option in a broader strategy.

"Without being romantic about what is possible, there are ways in which this aim could be realised to a greater or lesser extent. I would certainly like to move in that direction, however."

"I would not imagine that uni-

versity funding could be removed dramatically from the taxpayer, but some reduction in this support, coupled with a measure of independence, is conceivable."

The groups within higher education that could adapt most easily to "commercial" funding are the technology-based universities, the majority of which were converted in the 1960s from Colleges of Advanced Technology.

For these establishments, more extensive funding from industrial research would have to play a major part in their survival.

During the past two years, staffing levels have been reduced and departments have been forced to restrict their intake of science and engineering students. They are under extreme pressure to maintain academic standards and could therefore have to curtail some of their activities.

Sir Keith does not see it in the

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"That suggests that financial independence is no bad thing!"

In a well-balanced educational system, it is accepted that even the more esoteric arts and social science courses have a valid role. During a period of economic restraint, however, it becomes increasingly difficult to justify resources being committed to those fringe directions.

If the UGC is to retain its freedom of choice, future Secretaries of State at the DES will not be able to influence the channelling of funds where demand is greatest.

Sir Keith does not believe that action on this scale would be appropriate and suggests that a more subtle approach can have the required results.

"Universities are not there to serve the wealth and job creating mechanisms of society. Their objective is to increase and transmit learning, as well as serving the market."

"I would not want to truncate that respected and honourable part of their function."

Sir Keith is insistent, however, that the universities maintain their standards in whatever courses they pursue. "Having said that, the government has asked the UGC to shift resources marginally in favour of science, technology, engineering places."

"It is true that we would like to encourage the universities to take a broader approach, so that we do not have a generation of scientists who lack foreign languages or humanities - and vice versa. This might involve some minor adjustment to the A-level system."

If the fine-tuning envisaged by Sir Keith can be implemented, there is the real prospect of an education sector that is lean enough and has the flexibility to meet the demands of the '80s.

Cobol users' views invited

COBOL users have been invited to comment on the new draft standard for the language prepared by ANSI, the American National Standards Institute. The standard was released in February in response to over 2,000 comments on the previous draft circulated to the Cobol public in September 1981.

The main result of these comments has been to reinstate some traditional features of the language that were due to be deleted from the new standard. One such feature is the ALTER verb, which

some diehards wished to preserve, but use of which is forbidden by most Cobol installations.

Most Cobol experts think it should have been dropped from the language long ago.

According to Vony Gwillim, a senior consultant at the National Computing Centre, the ANSI decision to try and reinstate such obsolete features is "put down to a Luddite member of US company Travellers Insurance. This person is also a member of ANSI, and has led a strong protest group against

any changes to the language. This means that progress will be delayed all the more," says Gwillim.

"So much in the new proposed standard is necessary to what we do nowadays," she adds.

In particular structured programmers' facilities have been introduced to the new standard.

But advanced new features like the VALIDATE verb cleared by Codasyl, the international body that develops Cobol standards, will take years to filter through into the final standard.

And as for screen management proposals, says Gwillim, these could take 10 years to receive ANSI clearance.

Many manufacturers are already implementing screen management facilities with Cobol compilers. "It makes you wonder why we bother," says Gwillim.

But there is one piece of good news for Gwillim. From this September she will be UK secretary for the Codasyl group. "This will mean more liaison between the UK and US," she says.

BSI gives ICL's Pascal compiler top marks

ICL has released the first UK Pascal compiler to pass a new international standard for the language. The compiler, now available for between £600 and £800, is expected to replace the company's existing version which was developed at Southampton University.

The British Standards Institute (BSI) awarded the compiler class A certificates, when it won top marks in a test suite of 644 programs. Users of the new compiler can rely on the quality of error messages as well as implementation of advanced features of the language like array handling.

There will also be a better chance that programs developed on the compiler will run on other machines as the new standard catches on.

Three versions of the compiler are available. Level zero supports the basic standard set by ISO, the International Standards Institute, while Level One supports more

advanced ISO features like convenient array handling.

The most powerful version of the compiler supports various ICL extensions to the language such as the ability to use number bases other than 10, and advanced file linkage facilities.

In the US Western Digital is fast cashing in on its advanced Ada compiler which looks a good tip to become the second after IBM's to be granted a full standard by ANSI, the American National Standards Institute.

The compiler has been chosen by US computer maker TRW as the basis for a software development system on its range of military hardware. Western Digital last month announced a tie-up with micro-maker Digicom Research to put the compiler on to the Delphi micro.

TRW's project manager, Barry de Roze, says the compiler will enable his programmers to experiment with the language.



"It's no good. They're programmed in code that's hard to find if you try to discover their architecture."



Imperial College's computer science head tells David Casey of his 'disillusionment' with industry

Dedicated academics are the root of success

COMPETITION for the 80 computer science places at Imperial College, London, is intense, with between 700 and 800 applicants for the three-year college-based courses. A graduate conversion programme attracts further interest from a wide variety of experienced candidates in other disciplines.

With a surfeit of candidates, Imperial is traditionally able to select the finest talent — a situation which could potentially lead to academic study of a high standard, yet lacking relevance to the real world.

Professor Manny Lehman is the head of the computer science department at Imperial. He maintains that the purpose of the courses there is to educate computer scientists for a positive role in industry — an objective reflected in his new software engineering course.

"We recognised two or three years ago — before the Alvey Committee reported — that software technology would be the key discipline in the future."

The department immediately laid the foundation for a four-year course awarding a B.Eng in software engineering, claimed to be the first in the world. The course begins in the new academic year with a transfer of 10 students from the current computing science course, with graduation in 1986.

"The price of setting up the new degree is a reduction in the size of the computing science intake. The places that should be given up are those in esoteric subjects like Sanskrit. In practice, however, neither the government nor the University Grants Committee (UGC) — not even the college administration — will make those judgments. They say that supply and demand will cause a shift in due course."

According to the professor, there will be serious consequences if the government does not provide the funds through the UGC for the specialist software engineering course. Since three-quarters of the

The purposes of courses is to educate computer scientists for a possible role in industry

students applying to switch courses are from overseas, he sees the College exporting software engineers.

"The government must fund the extra places to remain consistent with the Alvey recommendations. While more software places are to be bid for by the universities, we are not sure whether those awarding them are aware of the importance of undergraduate teaching.

If that is not recognised, we will have to cut the number of computing science places."

To Lehman and his colleagues at Imperial, the government's IT initiative has been something of a Curate's Egg. On the positive side, they gained three posts (one in research, two for teaching), and a total of 20 students.

"It has created the situation where a few institutions will increase the strength of their IT staff by weakening others."

Professor Lehman sees the difficulty again as one of finance. "There are insufficient staff to go round, and salaries are such that we cannot draw people from industry — the real objective of the IT initiative. The government has restricted pay increases to 4.6%, with university salaries actually lower than in polytechnics."

The IT scheme is seen as having made an important contribution, but it has failed to look at the roots of the problem. "While blaming industry for being short-sighted, the government has the responsibility to think long term," was the professor's view.

He maintains that the issues at stake are not going to affect an election result, so the government can afford to take decisions that will boost investment in vital academic disciplines.

"Industry is getting the lion's share of the money, while universities could do a lot more with a smaller investment."

Lehman believes that the government has failed to recognise that any success achieved in the



IMPERIAL COLLEGE... Competition is intense.

UK will depend on those academics who are dedicated to providing a strong industrial technological base. "The rigid salary structure that has been imposed on universities takes away any chance of rewarding competence or penalising incompetence."

The computer science department at Imperial College is not funded in line with other science and technology departments. For the past two or three years, the unit has received a significant increase in its funding at a time when other departments have been static or had their allowance reduced. But that still leaves Lehman's operation 25% below par.

Until recently, he was working with a student ratio of 13:1, compared with an average for the college of 7.5:1. This year, the IT scheme and extra money from the college have helped bring the figure down to 10:1; still the highest pupil-teacher ratio in Imperial.

With closer ties between industry and university as a means of overcoming cuts in public funding, does the professor see any potential in that direction?

"I am utterly disillusioned by industry. The only interest from that sector is for their short-term benefit, with shareholders' interests to be taken into account. There is no wider view of what is required by the country in years to come, however," he says.

He contrasts the UK with the position across the Atlantic. "In the States, for example, there is a lot more co-operation from industry. There is much more part-time teaching in higher education by people in industry — due in part to the different university structure. It is not entirely a question of attitude, but industry there takes a longer term view of what universities can do for them. There is no need to show how a relationship with a university will affect this year's balance sheet; it is the ultimate long-term investment."

Lehman can make his criticisms from the standpoint of a department which has already shown commercial initiative. Imperial Software Technology (IST) is a company set up as a process designer, and "toolmaker" for the software industry. Its main "product" is the transfer of technology, taking advanced software techniques into industry.

But the company has another objective, according to the professor. "IST is seen to provide an industrial environment in which software engineers can acquire practical experience. The students

will see consultations with clients, the design, and the planning."

It is envisaged that the embryo software engineers will participate in development, although their role will not be critical. "The college must ensure that the students go to places where advanced technology is being applied, rather than where they will learn how not to do things," added Lehman.

With the reputation that Imperial College has acquired, there is no shortage of jobs for computing graduates: students with firsts or secondas have between three and six job offers apiece.

This imbalance is impressive, but is reflected across the UK, where the total number of specialist places cannot meet the demand. Computing science has

30% more applicants on a national scale than physics, although there are three times as many places in university.

Many physics and mathematics graduates come into computing, programmers, after what Leis regards as an inadequate training. "A lot of money is spent on them, when they could have been in computing science in the first place. If this is a crisis in technology, let us make the investment once and for all in computing science and software engineering on its feet in the Twentieth Century and the next demand."

Few people in the industry would disagree with those comments — but is there any hood of action being taken?



LEHMAN: "Government has the responsibility to think long term."



The poly that doesn't want computer boffins

David Casey reports from Kingston, soon due to launch an information system design course

HAROLD WILSON'S decision to upgrade colleges of advanced technology into universities during the '60s could have sounded the death knell for a complete tier of the education system. With an adequate number of universities to offer all the degree level courses required, there was potentially no role for the technical colleges and polytechnics offering Higher National Diplomas.

The continuing demand for technologists with practical experience, and the subsequent acceptance of CNAAs degrees by industrial employers has helped carve a niche in the educational system for polytechnics like the one at Kingston in Surrey.

The college has been offering a computer science degree course since 1969, with the entire programme re-written every three to four years to reflect developments in the industry; the current emphasis is inevitably on software.

In the experience of course leader Paul Bloxham, graduates are not taking up employment with computer manufacturers, and few move on to the Civil Service or teaching.

"Many join software houses, commercial enterprises and the nationalised industries, where they can specialise in applications and consultancy. From the outset we try to prevent computer boffins, although the students must be technically competent above all. We look for enthusiasm rather than obsession."

Placements for the industrial elements of the Kingston course reflect a similar orientation, but with a proportion working with hardware manufacturers. The students spend a total of 14 months in industry, spread over two sessions in the three-year course. Since it is not essential for them to return to the same firm for both phases, there is a great variety of environment and experience to be gained.

Specialisms for graduation are determined by the selection of third year options, while the academic component is endorsed by a practical project. The choice of project is influenced by the students' experience with their "sandwich" companies and the success of their other work.

Bloxham maintains that the graduates are kept immediately up-to-date with developments. "The final year options can be changed very quickly, based on feedback from industry, so there is only a one year lead-time to a new course."

His colleague Dr Patricia Pearce is about to launch a new course in the autumn, which should produce another sub-species of "homo calculus". Information systems design is intended to give students a broader base in the computing industry rather than a detailed knowledge of computers alone; it covers management, accounting and business practice.

The view at Kingston is that the course provides the background required to design a system which can meet the needs of the user. The information systems design course at Kingston is regarded as an equally valid concept at post-graduate level, where it has attracted the interest of ICL. The company has arranged for Kingston Polytechnic to run an MSc course, with half the fees paid by the Science and Engineering Research Council.

As part of this enterprising joint-venture, ICL is providing Perq and DRS hardware at reduced prices. Of the 30 students on the first course, half are ICL staff; the company's customers

"We look for enthusiasm rather than obsession"

taking up the remainder of the places. The objective is to provide a formal computer training for suitably qualified staff from another discipline.

Course leader George Rzevski explained how the project came to be set up. "The first approaches were made by ICL some eight months ago, when the company was looking for an MSc course at a university or polytechnic. Our proposal was accepted because the course could be running immediately — we have a similar course already operational."

Academic responsibility for the course rests with Kingston Polytechnic, although the ICL client was involved in the detailed design once the proposal had been accepted. Prospective students must meet the normal post-graduate entry requirements for the college. ICL forwards the application forms of appropriate candidates from its own staff and those of the company's customers; Kingston makes the final selection.

Rzevski saw a continuing interaction with the company as the course progressed. "ICL people will be involved in presenting case

studies." And with a note of optimism, he added, "including Robb Wilnot himself!"

The broadly comparable course to which Rzevski referred was a master of science in information technology. This one-year full-time programme is part of the much vaunted IT initiative of the government, which has been promoting new courses in a selection of universities and polytechnics.

In keeping with Whitehall policy, the Kingston MSc is a conversion course for graduates without a formal background in the subject. It would not provide a vehicle, however, for a pure arts student to re-train, as course supervisor Mike Denham illus-

trated.

"The students must have some computer exposure, either as part of a first degree or from a Topics course, to ensure that they are aware of the environment. People must be employable; our criterion is whether they would get a job with the addition of the qualification that the course provides," said Denham.

Competition for the 30 places on the course is stiff, with an initial list of almost 700 candidates. Government funding has provided SERC studentships for every place; an exceptional situation for post-graduate courses. A first or a 2/1 degree is the accepted entry level for a SERC award, but the applicant's experience is taken into ac-

count. The fact that SERC has lifted its normal age limit of 30 for the scheme indicates the importance of the student's background as a foundation for this applications-oriented MSc.

Kingston shows that polytechnics can produce quality courses

Denham indicated the kind of student he was hoping to attract to the course. "We are taking people with psychology degrees to work on the man-machine interface, for example. One candidate with a

place has had several years' sales experience before gaining his psychology degree. Anyone who completes the course should be able to take a leading role in implementing IT systems, and initiating greater awareness with his or her ideas."

Through the medium of its new systems courses, the MSc in information technology, Kingston Polytechnic is demonstrating that this sector of higher education can produce quality courses and students to meet the requirements of a constantly changing computer marketplace.

But it has taken the best part of two decades to take away the stigma of being the universities' poor relations.

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		ST/8	DataStar/MailMerge/SuperSort		Nov 23
		ST/18	SuperCalc spreadsheeting		Oct 26, Nov 24
		ST/19	dBase II		Aug 31-Sep 2, Nov 7-9
		ST/17	Introducing systems design		Oct 19-21

Computer Pro Courses	CPC/9	Hardware for software people	Oct 3, Dec 5
	CPC/10	Operating systems & languages	Oct 4, Dec 6
	CPC/11	Communications	Oct 5, Dec 7
	CPC/12	Application design & products	Oct 6, Dec 8
	CPC/13	System tools & generators	Oct 7, Dec 9
	CPC/20	UNIX	Oct 31-Nov 2
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EDUCATION AND TRAINING



BIS' Gerry Richings writes about why effective training is needed for effective growth

Wanted - skilled people

advertising spend, with revenue this April up 37.8% over the corresponding period in 1982.

Conversely, there is unemployment within the DP industry, due in part to companies wishing to retain flexibility by using contract staff rather than recruiting on a permanent basis.

When compared with the rise in recruitment figures, however, it would seem to suggest a gap between the need for certain skills and the ability of individuals within an installation to fulfil the organisation's expectations.

What then can be done to close the gap between skills requirements and their fulfilment? Part of the answer must be to improve the skills and abilities of the installation's people resources, and this can only realistically be achieved through a carefully directed improvement training programme.

Training is traditionally one of the first areas to feel the effect of a depression. This is in part due to the way many organisations view training. It is often seen by senior management as an activity principally aimed at new entrants - in other words a necessary part of the induction and initial development process.

Where DP training is mainly provided at new entrant level it is a sign that training may not be geared clearly enough to corporate and information technology objectives. In the extreme this can lead to training for experienced staff being viewed as a "perk" for good behaviour or performance.

While the need for new entrant training is seen as an obvious requirement, the investment and benefits associated with subsequent training - whether technical, general skills, or methods - has not been the subject of the same focus either in government sponsored schemes, or in the media in general. Yet failure to

develop on installation's resources to full potential misses the very real benefits associated with a carefully constructed and directed training improvement scheme.

These may include, for example: Productivity increases from the introduction of improved working methods; more effective individual contributions in all areas - analysis, design, programming or operations; improved communications skills integral to the DP department and within a company; increases in job satisfaction minimising the occurrence of loss of key staff.

In the worst situation the loss of experienced personnel can become a vicious circle because high staff movement means that companies are even less willing to train people beyond basic skills.

It does seem, however, that the mood of opinion is changing and that the value of training aimed at improving the effectiveness of experienced resources is being recognised. One example of this is the change in emphasis of the MSC training support schemes.

Up to now, these have been concerned primarily with the provision of basic skills training. But future aid will be focused much more sharply on the more advanced technology areas. The awareness of this area of need will be reflected in the grants available from next month.

The speed at which information technology is moving means that post-entrant training is essential if a company is to ensure that its human resources are able to evaluate and subsequently exploit new technology to the corporate benefit. It is crucial, therefore, that managers with responsibility for training within data processing adopt a positive approach to post-entrant training requirements.

Ideally, training should be based on a careful analysis of training

needs within the installation and clearly geared to the foreseen needs of the information technology services it provides. It should include a balance diet of product training relevant to the installation as well as training geared to the improvement of individual skills, and technical problem-solving in the wider sense.

It is clear that "one stop shopping" in the equipment and software supplier sense has gone, and more and more our human resources are being directed to evaluate a range of technical options and potential suppliers, and to select the best buy. This trend

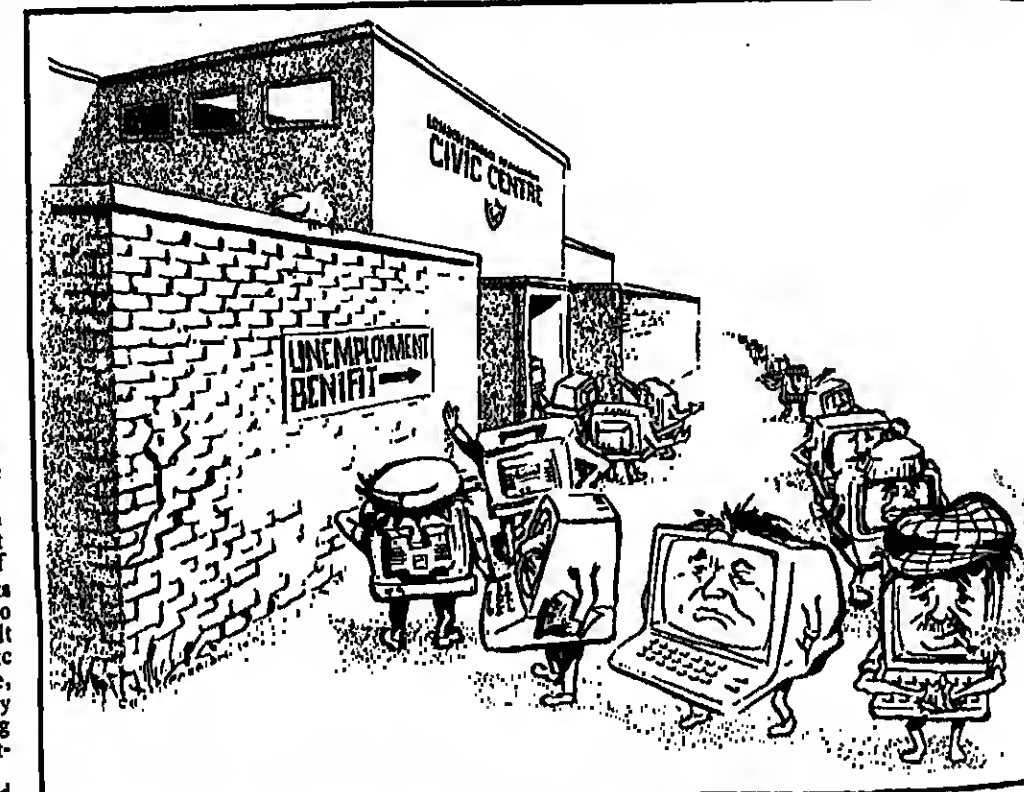
will undoubtedly continue, and put its own pressures on management and staff to maintain their understanding of technology trends and design issues.

In BIS overall training revenues are 30% up on the preceding quarter and, while new entrant basic skills training continues to play an important role within the context of our customers' training requirements, it is clear that more attention is being directed at the need to improve the performance of existing managers and staff, and to maintain their knowledge and understanding of technology trends and options. In the BIS context

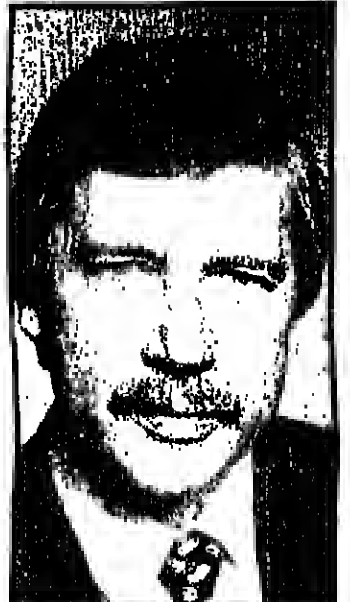
this is reflected in an increasing demand in three relevant areas: Interpersonal skills; methods of improving productivity in the systems development process (Modus); and advanced technology embracing for example local area networks, office automation, and telecommunications.

It is to be hoped that these are indicative of the future of that successful training will continue to satisfy the needs of the individual, the DP department and the organisation as a whole.

Gerry Richings is director of training at BIS Applied Systems.



Unemployment is caused by companies wishing to be flexible and employing contract staff.



RICHINGS... Improve skills.



Richard Lee argues that skill shortages can be overcome by training managers in micro skills

Micro waste is a problem

trained operators/programmers working on mainframes only a few years ago.

If managers are encouraged to make use of the increased capacity of micros; are offered proper training; get full support and advice from their DP managers - then they will become contributors to the data processing system.

If they are discouraged from learning about micros; are given no advice on standardisation of hardware and software; are forced to struggle in their micro by the back door - then they will become enemies, even saboteurs, of the existing system.

The acquisition of the skills needed to make use of a micro by managers already skilled in their own speciality will also go some way towards meeting the shortage of skilled and experienced computer personnel - the manager does not need to bring computer experience to bear on his DP activities since he brings experience and knowledge of his own specialist requirements.

In simple terms one can say that the micro can be the ruin of central data processing or it can be its greatest ally, and it all depends on the attitude adopted by central DP departments.

It also depends on training. Proper training is urgently needed to bridge the gap between the relatively unskilled operative which would have taxed highly

and small businesses who already own, or are on the point of acquiring, such machines. If training fails to keep pace with developments in hardware and in software then these developments are largely wasted.

Lodged it is reasonable to suggest that inadequate user training for micros has meant that growth in the personal computer market has already slipped behind its potential. This is certainly the view of observers in the US but may not be fully applicable in Britain where the market has followed a rather different pattern.

Here the danger is that machines are being bought and put into use but are only realising a tiny fraction of their potential because the people operating them have only a partial understanding of what is possible.

Rather more market research into the microcomputer market has been published in America than on this side of the Atlantic. Dataquest, a Californian market research company was quoted in *Business Week* as saying that \$14 billion will be spent on personal computers by 1986 and the training industry will have captured \$3 billion of this.

The training industry is becoming very big business in the States. The Computerland chain of computer stores has made it a policy that all new stores, which are opening at the rate of one a day, must be equipped with an attached

classroom and that as many as possible of existing stores must be retrofitted with classrooms.

In contrast, UK retailers have cut back on training as their margins have been squeezed tighter and tighter. If the American perception of the market is accurate then this cut back in training is against retailers' long term interests since it will slow development of their market.

Of course, training needs themselves have developed with the increasing power and sophistication of the micro. The longer term development will be towards more and more courses being geared to specific software packages.

There will still be a need for the language based courses, and the general introduction courses, but the great growth area will be tied to packages. Such courses will be geared to just that group of people whom I believe to be vital to improved efficiency of data processing throughout industry - the senior and middle managers in large companies, professionals and small businesses.

Training emphasis will move even further away from the retailers and towards the software and specialist training houses.

There is no question that training will remain a vital part of the microcomputer boom. It is reasonable to assume that a point will be reached at some time in the future when the need for basic introductory courses will diminish

but that time is still a very long way ahead. It is also reasonable to assume that by then the choice of new software will be such that there will be a massive growth in refresher courses and package specific courses.

Anybody who wishes to get the most from his microcomputer need not be fluent in Basic or Cobol or whatever. He probably has no need to be able to program. What he needs is a basic understanding of what can and cannot be done and a detailed knowledge of the particular software packages which he wishes to use.

What all this amounts to is that the sort of training given needs to be geared pretty closely to the uses to which micros will be put. There is a need for a whole range of specialist courses and for people to be prepared to attend as many such courses as necessary.

Quite simply, if proper training is not supplied then micros will not come anywhere near to fulfilling their potential. Resistance to making full use of micros will range from the small businessman who won't buy one in the first place because no one has shown him how to use it, to the executive who, having mastered one set of skills and range of software, will not develop these skills.

When Robert F. Wickham, founder of the American corporation Business Technology Inc, talks about the "educational bottleneck" and refers to computer

training as the "next business frontier", he has got it about right. Provided, that is, that the micro area is not strangled at birth by resistance from established computer experts who will not take to micro seriously.

Horizons of a great number of computer experts seem to stop at the mini and they don't fully appreciate that today's micro is nearly as effective a tool as its mainframe on which they have been trained in the first place.

With the availability of micros, grants the cost of training need not be prohibitive - though some available cost is likely to be greater in the long term than investing in training now.

Increasingly, specialist companies will take on the responsibility of training. They will do so by running courses in their own premises, or by providing special courses to be run in-house for their customers. We run all sorts of courses and both sorts of arrangements. One thing about a course run at a customer's premises, however, is that you can be reasonably sure that the DP manager has been convinced to go, and someone who has decided to go will make friends with the micro.

Richard Lee is managing director of the Computer Training and Development Centre (CTDC).

EDUCATION AND TRAINING



Sue-Lloyd Osborne thinks it's about time end-user training was taken far more seriously

Teaching businessmen is a serious business

dealer being able to offer formal training on his own premises because of the very nature of business software sales - he will be selling one application package today and a different one tomorrow - he cannot support the classroom approach.

Typically, the dealer sends a support person out to the user site to do the "training". This person is inevitably a technician - what dealer can afford to employ a dedicated training or software expert?

The support person carries out the training on the user site, a situation rarely conducive to learning because of the continuing pressures of the working day.

Unfortunately, the support person is all too often a technician who may excel in the training of hardware usage but will be unlikely to have the necessary experience in business oriented application software.

It has become apparent that the software supplier must shoulder the responsibility for this process and work together with the dealer to provide some real support for the end-user, who needs to be able not only to understand the software but also to be able to apply it to his business.

This task must inevitably lie in the hands of the application expert, usually only to be found on the supplier's payroll.

One of the few companies to organise a complete training programme is Maidenhead-based Peachtree Software International. Peachtree is the microcomputer software subsidiary of MSA (Management Science America); the

world's largest independent application software supplier.

While the company has always addressed the need to educate both its dealers and the manufacturing licensees, it is now launching a complete education service which includes training for the end-users.

Peachtree has taken the approach usually restricted to the large mainframe manufacturer or software supplier - that of setting up its own training centre with a dedicated team of lecturers.

This new department will open its doors to its first end-user trainees in August, with one-day courses each covering a particular package. The company is by no means acting from altruistic motives, the decision is based on sound commercial principles.

Commenting on the justification behind this new facility, John Hale, Peachtree's managing director, admitted: "Like any company we need to increase the number of successful end-users of our software. We're doing all we can to improve documentation and the usability of the systems but for a long time properly structured education is going to be necessary to achieve that objective."

Hale is convinced that it will take time before technology reaches the stage of self-teaching software being a reality rather than, as it is at present, a rather enthusiastic claim.

"It's not just knowing which keys to press. Implementing a package can demand new business skills for the user. Many businesses which buy our software are changing from manual bookkeep-

ing techniques depending on an independent accountant to bring the books together.

"With our software the user can prepare his own chart of accounts but it is highly likely that he will need advice on how to accomplish this. For this reason the user needs to be trained by someone who not only has the technical appreciation of software but also an in-depth knowledge of business routines."

Hale continued: "I am in no way criticising the dealer who has done a superb job in the interim. The only pity is that many dealers will have to carry on in this fashion because training support from suppliers doesn't exist."

"We would like to see our training as part of the support package offered by the dealer. We do not demand that dealers send end-users on the courses. They may continue doing their own training but I think most will regard it as economic sense to encourage our users to attend Peachtree courses."

Peachtree's one-day courses offer, in addition to actual familiarisation with a particular product, a complete grounding in the use of microcomputers with elements concerning disc handling, familiarisation with operating system utilities, implementation procedures, the importance of security copies and problem solving.

The courses require no previous computer experience and provide the trainee with both classroom teaching and practical "hand-on" training. Each course is fully docu-

mented and the user can use this for reference after his course.

The actual product element in the training course appears to be very thorough. For instance, the Peachtree basic accounting system nominal ledger course goes through the design, amendment and maintenance of the chart of accounts, budget and price period information, transfers from other ledgers, journal entries, profit and loss statements and the production of a balance sheet.

The courses appear to be professionally designed and at a cost of £15 for a one-day course, they should be very attractive to users. These courses are also open to manufacturer's and distributor's own dealer network.

The courses specifically for the manufacturers and licensees are again three-day courses on each product range but will look more at the product awareness and support aspects. These courses will be given at the customer location.

Sue Lloyd-Osborne is a freelance training courses, Peachtree will



Sue Fergie, manager of training services at Peachtree Training School.

Simulated games that stimulate thinking

Sheila Hart looks at the role of management games

Each year, experienced managers from major banks and multinational companies compete against teams of college and school students. The game simulates a real management team situation, with team members adopting the role of sales manager, production manager and so on.

A rapid succession of business decisions has to be made, each designed to illustrate by results in the form of profit and loss, the interactive implications of each manager's area of operation.

All too often it is the beginners who make the big profits and win the Cornelian game, leaving the experienced managers to "go bust" in the early rounds.

Why? Perhaps the main reason is summed up by Alan James of Hewlett-Packard's training department. He points out: "In the rapidly changing business climate, the criteria on which executives base their decision making must alter with circumstances. All too often, with experience comes the temptation to use a solution which has worked once to solve similar problems every time they crop up."

There is also the danger of each manager taking a blinkered approach to decision making which has implications for his colleagues.

Alan James wants to use Cornelian in conjunction with a number of other management simulation programs to educate managers out

of these bad habits. He explains: "By presenting trainees with one set of decision-making circumstances using Cornelian, then switching to a different simulated situation, we hope to teach them not to rely on established frames of reference but to assess each management problem as it affects the current situation in general."

Ken Young of Watford College uses Pet Plan, the Commodore version of Cornelian, for the residential weekend management training courses he's been running for 12 years.

At Watford they find that the local executives who attend the courses welcome the opportunity to change from their normal "real life" management roles and to experience a speeded-up version, albeit fictitious, of how one area of management decision making can affect another.

On a basic level, Ken Young also finds the game a reassuring and purposeful way of introducing executives who are unfamiliar with, and sometimes wary of, the use of microcomputers, to new technology.

Brain Luther, of Carreras Rothman's group management training department, a long-term user of Cornelian, points out that computer based simulation packages of this type can add a valuable practical dimension to relevant "O" and "A" level courses in, for example

accounting, economics, commerce and computing as well as polytechnic courses in business studies.

The fact that management training has been a *rigueur* in the major British companies for well over a decade, without any firm evidence of major improvements in standards, indicates that the earlier this type of practical solution is applied the better for the future of British industry.

Sheila Hart is a freelance journalist.

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Most private training schools are, of course, above reproach. But one or two are entirely unscrupulous, as an ex-teacher at one, Peter Brown reports

You pay the money and you take your chance

"THIS is a business. As long as the students are happy they'll pay the fees. And as long as they pay the fees we'll make a profit, and you'll get paid."

Such were the words of advice I received from the boss of the private computer school into whose employ I had entered. Situated in the seedy side of London's West End the school resembled a mini-United Nations, with Asians, Arabs and Africans making up a large percentage of the students.

"Keeping the students happy" was the key to being a successful teacher, at least in the eyes of the principal. This proved to be no simple task.

None of the students were alike in ability, motivation or suitability for working with computers. Measured in terms of firepower, some had the intellect of a peashooter, one or two that of a cruise missile, while most were in the flintlock pistol class.

The school did have an aptitude test with which it weeded out those considered undesirable. Unfortunately this obstacle could be overcome by a simple ploy: the production of sufficient cash to pay the course fees, then about £1,300 for 14 weeks.

Once they had entered the school's premises potential students were given a glossy brochure, stuffed with details of the courses, most of which never existed

Students were pulled into the arms of the school by two methods: either through newspaper advertising or via overseas contacts. The former promised them the high probability of employment in the computer industry. The latter usually had a job anyway, and many had their expenses met by their companies.

Once they had entered the school's premises potential students were given a glossy brochure, stuffed with details of the courses on offer, most of which never existed. They were also given impressive statistics on job opportunities in the computer industry.

The aptitude test lent a nice touch of credibility to the proceedings.

Before testing their intellect against this rather formidable battery of problems, students were told that a mark of, say, 45% was acceptable. A fellow teacher gave the test to an average 11 year old: he scored over 80%.

After wading, or struggling, through this timed test candidates would then be subject to the school interview. If they were hopeless, lucky, and English they might be given an honest opinion of their utter unsuitability for computing.

But if they were foreigners or immigrants they did not stand a chance. Their heads would be filled with dreams of well paid jobs at the end of the course, at which time many would be on their hands and knees for a job in a hamburger bar.

Poor English was no drawback to the enrolment of an overseas student. After all, the aptitude test was concerned merely with latent

computer ability, not with such bagatelles as the ability to understand the language of instruction.

Apart from being told they were wonderful, potential students were often given extravagant promises that could not be filled. The most depressing of these worthless bluffs of hot air was the pledge that job finding assistance would be given at the end of the course.

Another favourite untruth used by the course salesmen was to guarantee "hands on" experience. No such facility was available to the majority of the students, most of whom were only afforded the briefest glimpse of the hardware on a short tour of the premises.

Students who decided to take the plunge would then sign a form which bound them to pay full fees to the school. The wise ones took the option of paying by instalments, even though this cost more in the long term.

Although the school informed them that it would take legal action should students not pay in full, this was an empty threat. Any legal action ran the risk of backfiring in terms of the bad publicity it might generate.

Also, those who were paying by instalments ranked higher on the "careometer" than did those who had coughed up the full amount in cash. "Pay as you learn" students had their complaints heeded. If they were hopeless the more scrupulous teachers would tell them to forget the whole thing and get off the course before they wasted yet more cash.

One East African girl, who clearly thought she was the intellectual equivalent of Bertrand Russell, scored such a low mark that she was told to go away. Her English was so bad that this simple command was not readily understood.

Undaunted, she returned the following day with the fees in full, and was accepted with open arms.

Once embarked on the computer appreciation and programming course, students were surprisingly enough given the tuition promised. All of the teachers were qualified in computing and many would have put their state colleagues to shame.

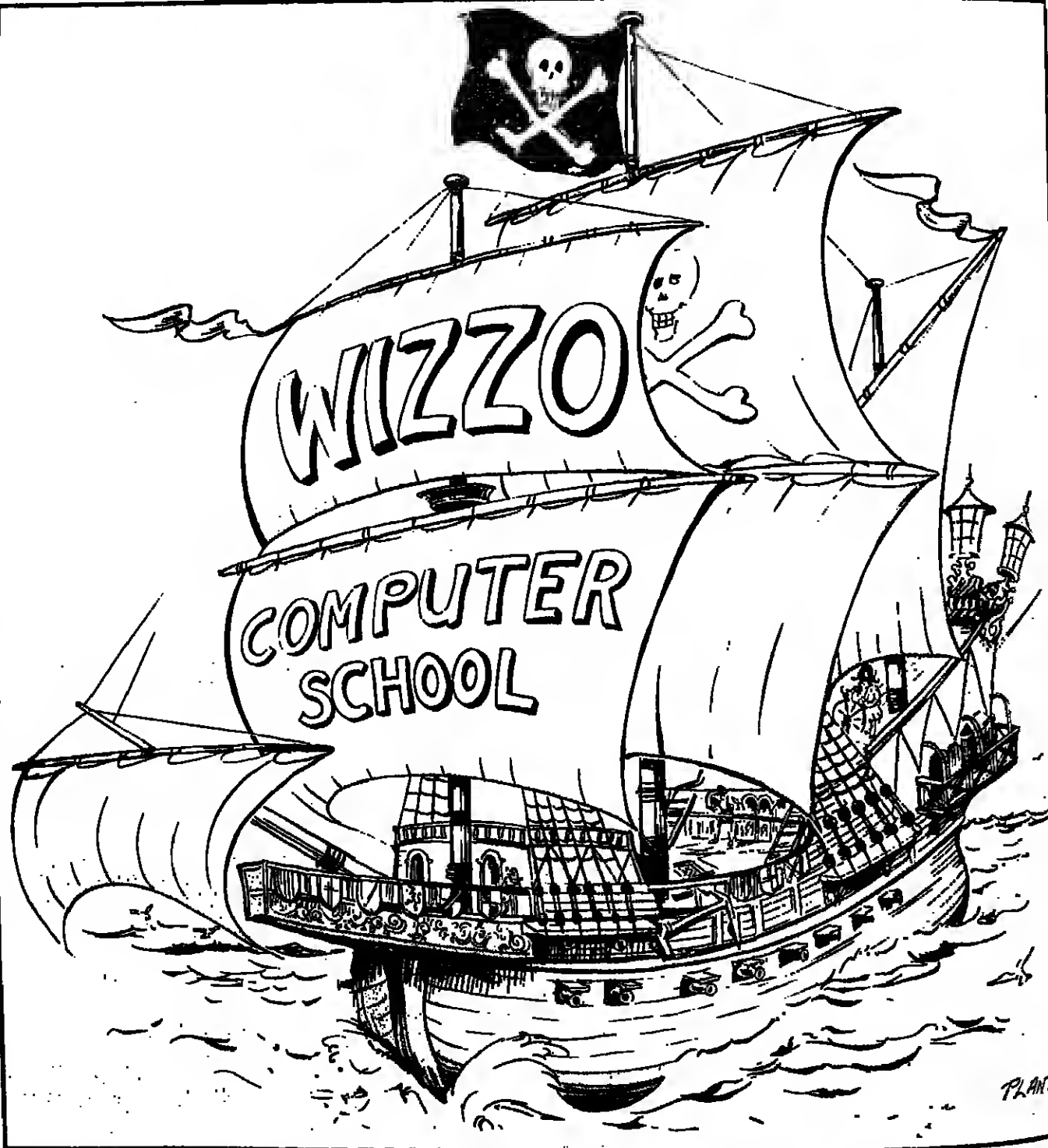
But for many students this was irrelevant. Given their lack of ability and poor English not even the good Lord could have saved them.

Typical of this lost cause was one young man from Pakistan. Armed with a batch of large certificates from various higher educational institutes in his home country, he seemed an ideal student, especially as most of these qualifications were in scientific subjects.

"Undaunted by being told to go away, she returned with fees in full and was accepted with open arms"

Regrettably, no one had told him that proficiency in English was much more important than his fistful of Pakistani certificates. No one, that is, apart from the computer school boss who had tried to sell him an English course.

The hopelessness of his task may be measured by the fact that he could not distinguish between goodbye and hello. Despite being advised by his teacher to quit the



course, he continued his hopeless task and enrolled on an English course at a nearby private school. Needless to say this institute, as with the computer school, welcomed him rather like the wolf welcomes the stray lamb.

At the other end of the scale there were students who took to computing like Brazilians to football.

In any class there were always two or three students who had "A" levels. Some of them had attended degree courses only to drop out for various reasons. Many of these were working in the evenings in order to pay for the course. It tended to be this type who posed the awkward questions.

Inevitably, they asked about the promised job finding assistance, and the lack of "hands-on" experience. Teachers, when faced with these tricky inquiries took one of two courses of action. One was to refer the student to the principal, the other was to fob the student off with a little lukewarm advice. Foolish was the tutor who told the

truth. The first course of action was, in the short term, the easier of the two, but in the long term was dangerous. The principal did not like

having to handle this sort of uncomfortable question, and that would mean a black mark for the teacher concerned, often expressed in terms of no pay rises.

Most teachers offered such job hunting hints as were applicable, such as looking for computer employers in the yellow pages, or giving advice on how to lay out a curriculum vitae.

As far as the "hands-on" experience was concerned the usual way out of this awkward poser was to say that the equipment was on its way. Surprisingly enough most students tended to accept this half-baked excuse.

If any group did try to right wrongs it was the teachers. For example, the owner would be told that promising prospective students job finding assistance was a latent lie, and thus quite immoral. He would make sympathetic noises, but would always come back to his favourite theme that a profit had to be made if the business was to survive.

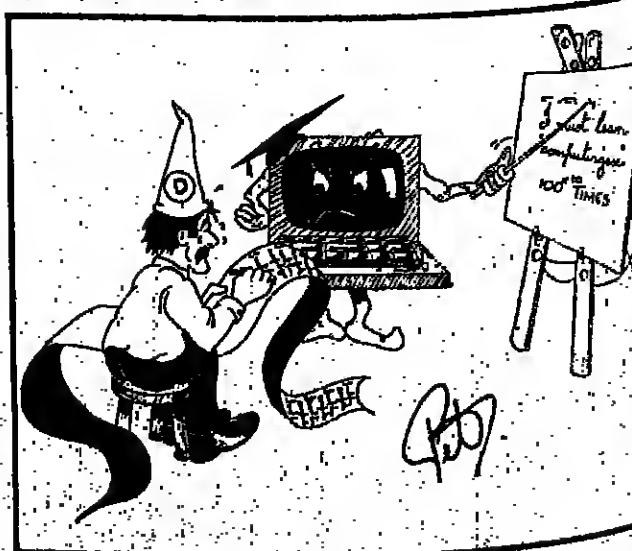
In that sense he was quite correct. Without all the false promises student numbers would diminish, and the whole enterprise would be doomed.

Eventually, two years after my exit, the business did fold. Laid low, not by an onset of morality on the part of the owner, but by the inexorable advance of the recession.

The numbers of home students coming forward fell dramatically, mainly because the word got round that trainee computer jobs were scarce, rather than because very

few people could afford the fee. Competition between the private computer schools became intense and only those who could resist overseas students survived.

Not that that would bother the mass of ex-students who had wasted a mass of time and money in a vain attempt to buy a job in the computer jobs bandwagon.



PEOPLE



M. E. Cleverley (above) has been appointed managing director of GEC Jerrold in a number of new appointments in the company. He has held various senior appointments with GEC Jerrold, being appointed director and general manager in 1982. Business activi-

ties under his control provided the technology and professional business base behind the creation of GEC McMichael in 1982 and now the GEC McMichael contribution to GEC Jerrold. D. Kent has been appointed as technical director. He is currently president of the Society of Cable Television Engineers. T. S. Duffy has been promoted to engineering director. He is currently division manager telematics, which covers cable TV, video and data transmission and teleconference systems. Finally, R. W. Brown has been made company secretary. He moves from the Jerrold division in Belgium where he was financial controller.

Quality assurance manager at Cifer is Paul Theobald, heading the department responsible for all aspects relating to the quality of Cifer products and customer service. He has been with Cifer for 6 1/2 years and previously held the post of chief inspector, quality assurance.

Linda Hall has been promoted by Rediffusion Computers to systems analyst, Midlands and North-east branch. She joined the company in 1976 as an instructor and in 1980 was promoted to junior systems analyst.



Mentor Graphics has appointed Ron Deswick as sales manager for northern Europe. He will sell the DEAI000 computer-aided engineering system for electronic circuit design. He previously worked for Calma.

Edward Holt has joined MSA (Management Science America) as sales executive covering Scotland and North-east England. He was previously senior sales executive with ADP Network Services, where he spent two years.

Mail Marketing (Bristol) has appointed Ron Morgan (below) as its computer services manager. He was previously operations director of Britannia Music's direct marketing division, a subsidiary of Polygram.



Comart, the Cambridgehire microcomputer manufacturer and distributor, has appointed Wendy Armon (above) to the newly created position of sales executive, responsible for the Comart WY range of intelligent terminals and VDUs. Having previously worked in sales support, she will now be responsible for developing and consolidating an expanding network of dealers and OEMs for what is a rapidly growing segment of Comart business.



Four of the subsidiary companies of Micro Business Systems have appointed new directors. They are David Bradshaw (second right), director and general manager of MBS Engineering Services, who has been responsible for the group's service division since 1980 as general manager; Philip Ely (far left), director and national sales manager, MBS Terminals, whose previous position with the company was national sales manager; Ian Hill (far right), director and general manager, MBS Personal Computers, who previously held the position of DEC products manager, MBS Terminals; and Lea Hill (second left), director and general manager, MBS Microtex, who has been with the company since 1978 and joins the board of MBS Microtex from the position of national sales and marketing manager.

Davis is Salesman of Year

Brian Davis has been named AIM's Salesman of the Year. He achieved 140% of his target, with total sales for the year amounting to over half a million pounds.

In announcing the award, chief executive of AIM, the Hull computer systems firm, Clive Teller, said: "A salesman's job is more than just securing orders. There has to be an understanding of, and commitment to, profitable sales,

an even spread of both orders and revenue, the continual fostering of the company's reputation and team spirited co-operation with fellow salespersons, development and support staff."

In the four years that Davis has been a salesman with AIM, he has been over target every year, a record that the company believes deserves the £250 of white goods which were his prize.



STU RITCHNER has joined Manhattan Skyline, the OKI UK distributor and representative, as a director. Ritchner was previously director and general manager of Ambar Components, the MEMEC (Memory and Electronic Components) subsidiary. He was instrumental in establishing Ambar in January 1981. Earlier he was with Texas Instruments.

DIARY

AUGUST 8-11

Practical Computer Auditing for business and systems analysts is organised by Control Data. It costs £145. Details from Sylvia Lyons, 01-240 3400.

AUGUST 8-12

Introduction to Organisation and Methods is designed for those involved in administration or management who need to review current systems. It takes place at the Henry VIII Hotel, London. Course places at £510 may be booked through the course registrar, Cherry Bignmore, on 01-261 9237.

AUGUST 16

Data Communications Overview at the Control Data Institute, London, gives an intro-

duction to modern communications systems. Organized by Control Data, it costs £145. Details from Sylvia Lyons, 01-240 3400.

AUGUST 30-SEPTEMBER 2

The second International Conference on Database, organised by the British Computer Society and universities of Aberdeen and Cambridge, takes place at Churchill College, Cambridge. Details: Peter Hammett, Middlesex Polytechnic, London N11 2NQ.

AUGUST 31-SEPTEMBER 1

Improving Programmer Productivity is a practical workshop for trainee programmers with basic language training and initial experience. Run by BIS Applied Systems, it is to be held at the Park Court Hotel, London, and costs £270. Details: Cherry Bignmore, 01-261 9237.

CONFERENCES

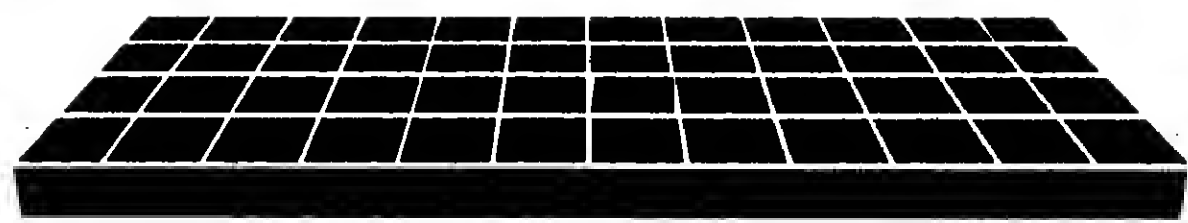
ALTHOUGH computer auditing is frequently considered the concern of major financial institutions, there is an increasing need for all computer installations to be monitored and controlled effectively to avoid accidental or deliberate falsification of computer held records. The computer as a tool and as the subject of the auditor's professional attention is to be examined by Andrew Chambers in his second presentation of Pergamon Infotech's tutorial, Computer Auditing, in London from September 12-15. The tutorial programme is designed for auditing specialists working with computers and data processing staff. Chambers, who is senior lecturer in audit and management control, the head of the

accountancy division at City University Business School in London, is a Fellow of both the Institute of Chartered Accountants and the British Computer Society. Cost is £485. Further details from Pergamon Infotech, Maidenhead, (0628) 39101.

THE sixth International Symposium on Programming takes place in Toulouse, France, from April 17-19, 1984. The sponsors are the French National Research Council and the University Paul Sabatier de Toulouse. Details can be obtained from Prof B. Robinet, Université Pierre et Marie Curie, Aile 55-65, 4 Place Jussieu, 75230 Paris Cedex 05 France. Tel: (1) 336.25.25 (ext. 52.51).

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Personal service? Do us all a favour!

Data processing people are used to good support from suppliers, but the personal computer back-up from retailers leaves much to be desired, says David Ferris

DP is accustomed to receiving a relatively high level of back-up support from its suppliers, but the service available for personal computers leaves a lot to be desired.

Buy a personal computer from the average retail outlet, whether owned by the hardware vendor or not, and you'll soon run up against utterly incompetent sales staff and post-sales support.

The reason is obvious: a few thousand dollars for hardware and software simply can't have a lot of service time included.

However, volume purchases do offer more interesting prospects. Buy several hundred PCs and you'll certainly get on-site visits by relatively informed and competent sales staff. But the issue of continued support still lingers ominously. Different vendors are experimenting with different approaches, so the activity is hot in the US.

The retail picture isn't all black: a few retailers do know their products. These vary from the occasional Computerland franchisee to sophisticated chains such as BusinessLand offering a high level of service and support to the small business user. Such outlets offer interesting support possibilities for DP — when located close to remote users, for example.

However, retail outlets still fall short in many ways. In particular, only very few of them understand the relatively obscure world of DP, and the world of chargebacks, in-house data communications networks, and mainframe database organisation — all of which are of critical importance to the corporate PC user.

IBM seems to understand the problems, and is trying to help its customers establish effective end user support. Large PC accounts must select one or more of their employees to be responsible for the coordination of support within their organisation: they are part of the corporation's information centre, as described in May's column (*Computer Weekly*, May 12).

They then attend a three day class at IBM's support centre. End users must channel their requests for assistance to the in-house support group, which may in its turn draw upon:

■ A telephone hotline to IBM's PC support group. This primarily provides support with 1) communications between PCs and other IBM equipment, and 2) turnkey software development using languages such as Cobol, Basic, and Pascal. If it can, it will also help with other software problems.

■ Local IBM engineers or service centres for help on hardware problems, or simple software problems. No direct support is provided to end users, except for simple hardware support on maintenance contracts.

Hewlett-Packard's 120 series of personal computers offers many attractive facilities to corporate users, not the least of which is its end user support program.

Hardware support is as follows: ■ End user on-site maintenance contracts are offered, with up to four-hour response time 365 days a year. ■ A "Volume Onsite" maintenance agreement provides for an engineer's visit once a week to one particular location. Under this

plan — which Hewlett-Packard seems to have pioneered — faulty machines are gathered together on a single location. The engineer then provides necessary on-site support at this location. He visits once a week. Clearly, this method of support is relatively cost-effective.

Software support is provided for a number of leading software packages, including WordStar for word

processing. Visicalc for spreadsheet, and Coodor for database applications.

For \$25 a month, users can subscribe to the system information service, which provides: ■ Toll-free telephone hotline support. ■ A useful periodical with tips and help. ■ Corrections to manuals.

This is available to end users as well as DP.

Apple's new personal computer, the Lisa, is targeted primarily at the large corporate user. As previously implied, most Apple II dealers cannot provide the level of sophisticated support required, so the company has carefully selected those that potentially can, about 150 of them in the US. In all, these dealers provide a US sales and service organisation of about 1,500 employees.

Large account sales are made either by these specialised dealers, whose staff call at the customer's offices, or by about 60 Apple-employed salesmen spread through the US. Post-sale support is provided as follows: ■ Simple hardware support to re-

place defective hardware support. Setting up such programs demands resources, but hardware is becoming very reliable and diagnostic routines can easily be run by end users.

Unfortunately, the software end isn't so simple. In fact, it's the hardest part. Further, the software is relatively cheap, with typical retail prices running between \$100 and \$500. This corresponds to between \$40 and \$200 to the software vendor.

Include the high costs of development and sales, and \$40 an hour for telephone support time (including overhead), and it's obvious that even limiting contact to the telephone, the software vendors can't afford to bundle much service.

So as things stand, most software companies have a telephone support staff of about two to four people, whose primary responsibility is to support thousands of retail dealers.

Most dealers find that they can't get adequate support from their vendors: when they telephone, the lines are engaged, and nobody returns their call. Some vendors do a

better job than most, but for the moment, it's inadvisable to expect much attention from your software vendors.

It shouldn't be inferred that the software vendors are callously indifferent to the problem. Some are putting a great deal of effort into alleviating matters.

MicroPro — vendor of leading word processor WordStar — is one example. The firm hopes to release a sophisticated interactive help system in August. In cases when this software fails, it will automatically send a diagnostic description of the problem to MicroPro's support team, which will then contact the user and provide direct telephone support.

In fact, MicroPro appears to have a very healthy approach to the support issues. Bill Ferguson, director of OEM sales and marketing, explains: "For the moment, we often can't provide the kind of support we'd like. But we recognise the key role of management information services, and we think we understand its support needs. We view these needs as a major opportunity for us, rather than a financial burden... We intend to satisfy many of the requirements, and in many ways will become more of a professional services firm."

Thus today's supplier support is a mixed bag. Hardware vendors can be a lot of help with hardware errors, simple communications support, and — depending on the vendor concerned — various software packages. For the moment, package support directly from the software manufacturer shouldn't be relied upon.

Over the long term, it's not yet clear how much support the hardware and software vendors will be able to provide. As they become able to charge for support, the offerings will clearly improve in both scope and quality.

On the other hand, there are still likely to be important areas that



David Ferris is chairman of Ferris Corporation, a vendor-independent firm which provides personal computer support and training within its environments. As a software industry expert, his personal clients include Amdahl, Cincom, Hiachi, Intellivision, and Xerox. Based in San Francisco and London, he has a MSc in computer science from Stanford University, California.

won't be satisfactorily provided for, and the next and final issue of this three-part series will address these remaining areas.



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TRADE FIGURES

John Aczel finds that imports and exports of computer kit are on the upswing

UK exporters beat off rivals as market activity picks up

UK sales of computer systems and central processing units have recorded a marked rise in value and sales abroad have been higher than expected during the beginning of 1983. In some key markets, particularly in Western Europe, they have forged ahead and have shown a very satisfactory trend, despite intense competition in this field.

The latest trade figures reveal that exports of CPUs amounted to £38.4 million in March, which compared with £32 million at the end of 1982. For the first three months of the year, the underlying trend has also been firm and sales amounted to £78.6 million.

In terms of value, there has also been a significant growth in deliveries abroad and over 34,000 CPUs were sold overseas in March as against 22,400 three months ago. Evidently, the recent fall in sterling has made exporting easier, especially as some British firms have been in a good position to cut their prices, particularly in some of the Continental countries.

Competition in the market for computer systems and CPUs has been quite tough, and British firms have reduced their prices markedly in recent months. Thus, the export price of a typical CPU system has declined to just over

It is disappointing that trade with North America has been falling, although sterling has been weak against the dollar

£1,100 in March, and this represented a fall of about 20% compared with the price at the end of 1982.

A high level of exports has been maintained in some of the European countries and sales to West Germany, in particular, have gone up considerably. Deliveries of CPUs to Germany amounted to over £9 million in March, up by 50% compared with December, while a useful increase in exports to France and some of the Scandinavian countries has also been reported. There has been a buoyant trade with the Netherlands with

deliveries more than doubling to £4.5 million.

Holland acts as a springboard for British sales to other European countries, particularly in the EEC, so many deliveries to Holland are re-exported, but even so this trend in UK sales was very satisfactory.

It is disappointing that trade with North America has been falling, although sterling has been weak against the dollar during this period. Sales of CPUs to the US fell to less than £500,000 in March, which was down by over 50% compared with December. This setback may be only temporary, as, normally, significant exports are made in North America, despite intense competition there.

There has also been an increase in sales of complete systems incorporating input/output devices, though most of the trade consisted of CPUs alone. Deliveries of complete systems amounted to £4 million in March, compared with £2.9 million in December, while for the first month of the year, the cumulative figure has gone up to £8.7 million.

The number of systems exported has shown only a limited change, with 2,400 systems being sold abroad — about the same as the end of last year. In contrast to CPUs, the average price of these systems has gone up and reached £1,700 by March.

Imports have also been quite buoyant and have reflected the upswing in activity in the British computer market, particularly for mini and micro machines. Thus, nearly 35,000 CPUs came into the UK in March as against 31,000 in December, while for the first quarter of 1983, the underlying trend continued to be strongly upward, with a total of 97,000 units.

In terms of value, the increase has been more limited, due to considerable price-cutting which occurred during this period. As a result, the value of CPUs coming into the UK reached £48 million in March, which was only marginally up compared with three months ago.

The most important feature in this sector has been the strong rise in deliveries by the US. Sales by the US of CPUs jumped by over 60% to £20 million and accounted for over 40% of total foreign deliveries.

In terms of suppliers, Ireland has now taken second place to the US and its sales amounted to £9.5 million. Competition from other European countries has been quite tough, though deliveries by France

Imports of complete systems	March 1983 No.	December 1982 No.	Jan-March 1983 No.
Germany (West)	2,844	1,235	6,719
Ireland	1,598	154	3,258
Italy	577	311	1,111
Japan	2,982	948	8,030
Netherlands	785	—	2,080
US	1,702	1,263	3,765
Imports of processing units	March 1983 No.	December 1982 No.	Jan-March 1983 No.
Belgium-Luxembourg	31	34	94
Canada	47	—	66
Denmark	9	12	21
France	99	389	247
Germany (West)	11,278	9,387	24,886
Ireland	3,404	3,177	12,748
Italy	1,226	1,151	1,941
Japan	395	307	2,791
Netherlands	850	869	3,526
US	14,444	5,366	35,121

Table 2. UK imports of computer systems — by volume.

million. There was also a marked increase in the volume of imports, with the total nearly doubling to reach 12,800 units in March.

Most of this increase was due to higher deliveries by the US, whose sales doubled in value to £5 million

in March. Increasing sales of complete systems from some European countries have also been recorded, particularly from West Germany and Ireland. In the case of Ireland, its deliveries reached a peak of £2.4 million in March.

The UK continued to have a negative trade balance, although it

was lower than expected with regard to CPUs. In this sector, imports exceeded exports by about £10 million in March, and this compared with a deficit of £15 million in December, while for the first quarter the gap rose to £40 million.

It is disappointing, however, that for complete systems the deficit showed a sharp rise and amounted to £12 million in March, which was three times the figure at the end of last year.

It is expected that British exports for CPUs and complete systems will continue to forge ahead and will take advantage of the buoyancy in the computer sector in many key markets. If sterling should stay at a relatively low level, British firms will be in a good position to improve their market position abroad, despite mounting competition from some major suppliers in Ireland, the US and West Germany.

Exports of complete systems	March 1983 £000	December 1982 £000	Jan-March 1983 £000
Belgium-Luxembourg	58	333	1,521
France	1,152	229	2,104
Germany (West)	200	33	286
Italy	—	143	226
Japan	437	380	779
US	—	—	—
Exports of processing units	March 1983 £000	December 1982 £000	Jan-March 1983 £000
Australia	159	151	570
Belgium-Luxembourg	2,999	2,015	5,589
Denmark	779	650	1,253
France	6,072	5,527	13,135
Germany (West)	9,047	6,107	17,993
Ireland	1,333	612	2,275
Italy	2,497	3,095	6,481
Netherlands	4,476	1,613	7,013
Norway	39	329	1,305
South Africa	431	559	1,223
Spain	1,339	857	2,622
Sweden	1,060	1,736	2,963
Switzerland	1,507	1,006	2,747
US	495	290	2,283
USSR	—	590	845

Table 3. UK exports of computer systems — by value.

Exports of complete systems	March 1983 No.	December 1982 No.	Jan-March 1983 No.
Belgium-Luxembourg	144	39	1,311
France	472	136	732
Germany (West)	287	22	359
Italy	—	27	24
Japan	61	53	252
US	—	—	—
Exports of processing units	March 1983 No.	December 1982 No.	Jan-March 1983 No.
Australia	176	218	625
Belgium-Luxembourg	2,641	1,677	5,823
Denmark	6,814	1,285	5,884
France	8,275	875	13,392
Germany (West)	8,275	2,291	16,647
Ireland	149	151	275
Italy	1,005	1,834	3,786
Netherlands	5,755	1,086	6,786
Norway	1,841	460	2,186
South Africa	102	97	230
Spain	643	1,819	1,557
Sweden	2,261	1,098	6,013
Switzerland	463	623	938
US	64	1,762	725
USSR	1	39	71

Table 4. UK exports of computer systems — by volume.

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NORTH OF ENGLAND

5 FIGURE BASIC SALARY

SUBSTANTIAL GUARANTEE

£25,000 TARGET EARNINGS

COMPANY CAR OR CAR ALLOWANCE

Since its inception over 15 years ago, the company has invested a higher percentage of income in product research than any other major computer manufacturer. This commitment has resulted in a steady flow of innovative and ingenious processors, peripherals, software and services. Further recent product releases and a sustained annual growth rate of over 20% have determined the need for continued expansion of their Major Accounts sales team.

The requirement is for a SENIOR SALES EXECUTIVE to work from their Northern Major Accounts Headquarters in Manchester. The successful candidate will need to prove at least 3 years of high level sales achievement in any of the following areas:

- Major Accounts
- Distributed Data Processing
- Mini/Mainframe Systems
- Large Turnkey Solutions
- Computer Services

Can you rise to this challenge? If so ACT NOW! - for a completely confidential discussion telephone 061-236 1157 during business hours or Evenings and Weekends until 9.00 p.m. telephone JEFF WALTON on 061-962 0002 or DAVID EASTON on 0270 580129

INTERFACE
RECRUITMENT & SELECTION CONSULTANTS LTD

Manchester House, 86 Princess Street,
Manchester M1 6NG. Tel: 061-236 1157.

High Technology Electronics Ltd

A Member of the Grand Metropolitan Group

H.T.E. is a Southampton based Company which designs and manufactures microprocessor products for sale to industry and commerce. Although a relatively young Company, we are enjoying considerable success and are in need of additional staff to maintain our current levels and ensure our continued and successful growth.

The vacancies listed below are for top grade professionals who can grow with the Company and ensure its success in the coming year.

SALES PROFESSIONALS

Vacancies exist immediately for two Key Account Salespeople and a Sales Co-Ordinator.

KEY ACCOUNT SALESPERSON UP TO £20K

The Key Account Salesperson handles all aspects of his/her customers interface with H.T.E., from finding the prospect, negotiating the contract, through to co-ordinating manufacture and delivery.

Typically the Key Account Salesperson is responsible for one or two major customers and is charged with developing the accounts to ensure their continuing growth.

The successful applicant is likely to be over 25 and have several years sales experience, preferably in the computer, electronics or a related industry. He/she must demonstrate the ability to communicate well at all levels and have an aptitude for planning and co-ordinating the activities of a variety of disciplines.

The job attracts a very competitive basic salary with the usual fringe benefits and also a substantial on-target bonus, together with a Company car.

SALES CO-ORDINATOR UP TO £14K

The Sales Co-Ordinator handles all aspects of the Company's in-house selling activities.

The position entails acting as a focal point within the Sales Department, ensuring customer requests by telephone and letter are acted upon quickly and efficiently, together with actively selling the Company's products into markets that do not require a personal visit.

The organisation of mail shots, publicity literature and demonstrations is an important part of the post, together with the maintenance of the Department's demonstration and presentation equipment.

The successful applicant is likely to be over 25, have a broad experience of selling, and be meticulous with paperwork. He/she will be a self motivated individual, keen to progress and have a technical aptitude. As much of the customer contact will be by telephone, a confident telephone manner is also essential.

The position attracts a good basic salary with on-target bonus as well as the usual fringe benefits.

PLEASE APPLY EITHER IN WRITING ENCLOSING A FULL C.V., OR BY TELEPHONE REQUESTING AN APPLICATION FORM, FROM PENNY HIBBINS, PERSONNEL OFFICER, HIGH TECHNOLOGY ELECTRONICS LIMITED.

Closing date for all applications - not later than Monday, 15th August, 1983.

H.T.E.
HIGH TECHNOLOGY ELECTRONICS

303-305 Portwood Road
Southampton SO2 1LD
Tel. 0703 581555
Telex 47388 HTEL

PROJECTS CONTROLLER Software Development c £14,000+ Car

Although only fifteen months old this mini-computer software house has already reached the targets for expansion set by the parent company. They therefore need to recruit an experienced projects manager to take charge of development work.

As part of the management team you will be responsible for the preparation of proposals for clients as well as resource allocation and scheduling. Additional responsibilities will include assistance in establishing growth patterns and meeting levels and setting up in-house standards and procedures. A knowledge of training requirements for customers and own staff would also be of great benefit.

Aged in your 30's you should have risen to project management level via programming and analysis. Previous experience of seeing a major project through application to implementation - plus the provision of post-implementation support - is essential.

Salary is negotiable in the area indicated and will be accompanied by a benefits package which includes a company car, non-contributory pension, etc.

Call David Mason Johns today on 01-948 5922 (24 hours answering service) or 01-747 0969 (evenings and weekends) for an application form. Alternatively write to him at the address below. Please quote Ref. 8164/CW

KPG
01-948 5922

KPG Computer Support
Services Limited
Cobden House, Park Lane,
Richmond, Surrey, TW9 2RA



SENIOR APPOINTMENTS - £14K +**SALES PROFESSIONALS
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Income package
£30,000

High base salary,
excellent guarantees

2 Litre Company Car

Locations - Midlands,
London and
surrounding counties

Our Client is a leading American computer manufacturer, marketing a range of 16 bit and 32 bit commercially orientated computers, based on the highly acclaimed PICK operating system, which allows them to span both the super micro computer and the multi-processing distributive data processing spectrum.

As a result of their professional marketing stance, recent product launches and continued expansion, we have been retained to recruit sales executives to become part of our Client's positively directed and well supported sales teams.

This recruitment heralds an important new business drive and therefore candidates should have the proven ability to win new business, coupled with maturity and credibility to maintain and develop long term substantial accounts.

In return for your success, you will receive a generous income and benefits package, with the satisfaction of joining a company whose plans are based on a combination of financial security and the continued adherence to a proven business philosophy.

Our Client is poised on the threshold of the most exciting and certainly the most significant phase of their development so if you would like to be considered for these superb opportunities, please contact RICHARD CHAMPION on 021-236 1999 (24 hour answering service) or Hegley 844166 evenings and weekends. Candidates are invited to submit Curriculum Vitae if preferred, where confidentiality is guaranteed.

Cathy Tracey & Associates Ltd

PHOENIX HOUSE
1-3 NEWHALL STREET
BIRMINGHAM B3 3NH
TEL: 021-236 1999 TELEX: 825264

SILBURY BUSINESS CENTRE
356 SILBURY BOULEVARD
CENTRAL MILTON KEYNES MK9 2LR
TEL: 0908 604848 TELEX: 825264

(4889)

**PROGRAMMERS/
ANALYST PROGRAMMERS**

System 38 - Middlesex
to £13,000 + Benefits

Planned expansion into new business areas has meant a 100% increase in turnover for the U.K. subsidiary of a well-known American insurance group. This continuing growth has necessitated the upgrade from twin System 34s to a System 38. To help bring the software into line with the new hardware they now need to recruit three experienced System 38 professionals.

The senior position calls for an Analyst/Programmer with good technical and communications skills gained within the G.S.D. environment. Previous supervisory experience and some knowledge of financial systems would be an advantage. Programmers should have two years' experience and be looking to develop in a project environment. In both cases candidates must have at least one year's exposure to RPG III on the System 38 and be capable of supporting a widespread user group.

Salary is negotiable according to age and experience and is accompanied by the sort of benefits package normally associated with an international group. The real benefit, however, will be the opportunity to grow with a rapidly expanding company.

Call David Mason Johns today on 01-948 5922 (24-hour answering service) on 01-747 0968 (evenings or weekends) for an application form. Alternatively write to him at the address below. Please quote Ref. 8166/CW.

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01-948 5922

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Services Limited
Corden House, Park Lane,
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**SUPPORT ENGINEER
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Tbar
SWITCHING TECHNOLOGY

Our client, a major supplier of sophisticated switching systems, pride themselves in their high standard of technical support.

This position involves providing pre and post sale technical support and training throughout both the UK and Europe.

The successful applicant will possess:

- Experience in either communications or IBM planning and organisation;
- The ability to present technical solutions both verbally and in written format;
- Excellent personal presentation;
- A commitment to train both customers and engineers;
- Degree level education or extensive relevant experience.

A generous package of benefits includes a company car, free health cover, pension scheme and 20 day's leave.

Please contact in the first instance, George Shaw on 01-549 9236 (24-hour answering service)

Sloangate Recruitment Advertising Limited
Dominic House, 171-177 London Road, Kingston-upon-Thames,
Surrey KT2 6RA. Telephone 01-549 9236

Sloangate
Recruitment Advertising

(4889)

**ANALYST
PROGRAMMER
C.A.D.**

Rediffusion Simulation are the world leaders in the design and manufacture of flight simulators and are currently engaged in a major expansion of their C.A.D. facility, incorporating 16 and 32 bit process.

The current, very successful application of C.A.D. in the electrical field, producing diagrams, N.C. tapes, and ATE data is to be expanded to embrace mechanical design using 2D, 3D and solid modelling techniques and P.C. design using autorouting.

The successful applicant will be required to become involved in all levels of the systems design to providing software support to operational staff.

Applications are invited from suitably qualified persons aged 25-45 years, experienced in the development of C.A.D. software, using Fortran and who ideally have computer/television experience.

Please telephone for an application form or send a comprehensive C.V. to:-

J. A. Perry, Personnel Manager - Works and Recruitment,
Rediffusion Simulation Limited, Gatwick Road, Crawley
West Sussex, RH10 2RL. Tel: Crawley (0293) 28811

(4830)



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**CONTRACTS**

IBM SYS 34 RPGII
ANALYST/PROGRAMMERS LONDON

IBM COBOL IMS DB/DC
ANALYST/PROGRAMMERS SURREY

ICL COBOL (APPLICATIONS MANAGER)
ANALYST/PROGRAMMER SURREY

DL/I DESIGNER SURREY

AOE PROGRAMMERS SURREY

For further details contact: SINC POLAND TLP

(4820)

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5656

**Recruitment
Consultants**

Established in 1960, Industrial Artists Limited is one of Europe's leading service organisations supplying highly-skilled professional staff to UK and Overseas clients.

Within our Marketing and Recruitment Division we are currently seeking two Recruitment Consultants to consolidate our existing UK client base and expand its area of operation.

If you are equally at ease with clients or applicants, aged 25+, highly motivated, in possession of good communication skills and above average common sense, we can offer you an excellent remuneration package in a challenging and demanding environment.

For an initial discussion please telephone:

Ann Arlidge, Marketing and
Recruitment Director, on (0462) 57141
(days) or (0462) 700701 (evenings).

Marketing & Recruitment Division
Industrial Artists Limited
21 Bancroft, Hitchin
Hertfordshire SG5 1JP. Telex: 828146

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**JOIN A WINNING TEAM -
IN DDP AND OFFICE AUTOMATION****MOTOROLA**

MOTOROLA is a high technology world leader. The information systems group of Motorola is expanding its operation and currently seeks professional staff in the product management segment of our division.

PRODUCT MANAGER

CLUSTERED SYSTEMS

The successful candidate will be responsible for the marketing functions associated with our microcomputer-based product line. Internal responsibilities will include 24 bit product launch and promotion of Motorola systems. Long term emphasis will be to concentrate on future requirements, microprocessor integration via networking and X 25 and related products.

PRODUCT MANAGER

16 BIT PRODUCTS

We seek an experienced 8-16 bit Product Manager. The successful candidate will have a proven record as a product marketer in the office automation equipment arena. Initially required to launch and promote a new line of microprocessor based office systems.

MARKET ANALYSTS

Expected to perform in-depth European market and competitive analysis of all segments of the distributive data and office automation equipment market. Additional responsibilities will include consolidation of information for our various product marketing functions, publication of reports and participation in regular briefing sessions.

VERTICAL MARKET APPLICATIONS

We seek a proven performer who has previous experience in the OEM/Reseller market and the marketing of applications packages.

The successful candidate will be responsible for the analysis of vertical and horizontal market opportunities. Additional responsibilities will include assisting with the Reseller programme and assisting product management functions.

We are offering attractive salaries plus free life assurance, private health cover, non-contributory pension scheme, 20 days' annual holiday.

Please forward your curriculum vitae without delay to:

Miss S. J. Seawin
Motorola Ltd, Information Systems Group
114/116 Thornton Road
Thornton Heath, Surrey CR4 6XB

(4827)



MOTOROLA
INFORMATION SYSTEMS GROUP

محرم الحرام

your appointments register

Programmers

NCR/IBM/COBOL to £15K
Insurance Banking London · H. Counties · N. Eng.

COBOL/PL/OS/CICS/IMS to £13K
Commercial H. Counties · Midlands · Manchester

PLZ/COBOL/MINIS to £12K
Commercial London

HONEYWELL to £12K
Systems Programming experience Middlesex/London

DATA GENERAL ECLIPSE to £11K
Cobol Leicestershire

SYSTEMS 34/36/38/RPG2 to £12K
Insurance/Commercial London/Home Counties

IBM to £16K
System exp. Essex

BASIC to £11K
Mini Computers London

IBM/UNIVAC/COBOL to £12K
On-line/Database Surrey

NCR 8200 to £14K
Financial SW LONDON

Analyst/Progs

PRIME CAD/CAM to £11K
Home Counties/E. Anglia

IBM 34/38/4341 to £15K
London/Home Counties/Norfolk

ICL 1500/ME 29/2903 to £12½K
COBOL Essex/Herts

IMAGE PROCESSING C/UNIX to £12K
Scientific Applications

Hardware/Support

APPLICATIONS ENGINEER to £15K
Peripherals Support/Microprocessor Systems London plus International Travel

CUSTOMER SUPPORT £10K
Basic Hampshire

SUPPORT ENGINEER to £15K
London/Europe/Amsterdam

EXPD. SOFTWARE TECH. AUTHORS £NEG.
Datacomms/Operating Systems/Telephony/etc. Europe

PROJECT ENGINEER to £11K
Systems/DEC Beds/Manchester

SOFTWARE SUPPORT £NEG.
Medical/Training/Technical Berkshire

Systems Analysts

IBM/ICL to £12K
Stock Control/Commodity Control London

CAD/CAM to £16K
Real time · Modelling Man/Essex/South West

IBM/BURROUGHS to £15K
Commercial Accountancy London/Surrey/Manchester

IBM/PL/1/DL/1 to £11K
Database Support Middlesex

ICL/ME29 to £16K
Commercial Design Herts

IBM SYSTEM 34/38 MAAPICS to £13K
Sussex

Software Engineers

CORAL/PASCAL/MASCOT/C to £13K
Communications Glouce/Hants/Sussex/Midlands/Manchester

REAL TIME/ASSEMBLER to £13K
Microprocessor Design Suffolk Coast

MILITARY SYSTEMS/RADAR to £14K
Coral · Mascot Hants/Surrey/Essex/S. West

PDP/VAX/INTEL to £13K
Telecomms · ATE Derby/Surrey/London/Kent

COMMS/TELECOMS/MOD to £14K
Mini/Mainframe E. Anglia

HP3000/INTEL to £12K
CAD/CAM/ATE Home Counties

TERMINAL EMULATORS to £15K
C/Assembler London

Snr Appointments

PROJECT LEADER to £15K
Military Systems Berks/Hants

SALES EXECUTIVES to £25K
Micros · Minis · Peripherals, etc. UK & Overseas

CONSULTANT to £15K
Military/Defence Berks

SYSTEM PROGRAMMING to £15K
Digital/RSTS/E, BASIC Bucks

TEAM MANAGER to £17K
Computer Modelling/Fluid Flow S. London

ICL/PRE- AND POST-SALES to £16K
SUPPORT Berks

SOFTWARE SECTION MANAGER to £18K
Personal/C/Microprocessor Essex/Middlesex

PROFESSIONAL OPPORTUNITIES

IN THE UNITED ARAB EMIRATES



شركة أبوظبي للمحيطات البترولية
(ADCO)

Abu Dhabi Company for Onshore Oil Operations (ADCO)

We now offer challenging opportunities for professionals with requisite qualifications and experience in the oil industry for the following positions:

Job Ref.	Post Title	Summary of Duties	Minimum Education & Experience	Salary Range UAE Dirhams	Location
S.12/83	Database Administrator	Directs and supervises the activities of Database design. Liaises with applications project teams to determine database requirements and translates them into a database design. Provides advice & guidance to the project team for systems design and implementation wherever a database is to be used.	a. B.Sc. in Computer Science or equivalent. b. 5 years' experience in data processing, 2 years of which in database design. c. Good knowledge of Arabic and English. d. Excellent knowledge and experience on the IBM 308X or 303X Hardware and IBM Operating System for large mainframe such as MVS/SP, IMS, CICS, TSO, etc. and other software products available in the IBM large mainframe.	8976-11070 per month	Abu Dhabi Town
S.13/83	Senior Programmer	Assists in the design of suites of programmes to implement systems specified by the Systems Analyst. Prepares detailed specifications from which complete set of programmes will be written. Assists the Systems Analyst and Project Team members in testing and implementing systems.	a. B.Sc. in Computer Science or equivalent. b. 4 years' experience in Programming and Data Processing Work. c. Good knowledge of English and Arabic. d. Excellent knowledge and experience on the IBM 308X or 303X Hardware and IBM Operating System for large mainframe such as MVS/SP, IMS, CICS, TSO, etc. and other software products available in the IBM large mainframe.	7816-8670 per month	Abu Dhabi Town
			e. Oil industry experience is preferable. f. Duration of Contract: 2-3 years.		

The climate in the area is hot and humid in summer, temperate in autumn but moderate and pleasant during rest of the year. Abu Dhabi is a modern city with good shopping, communications and recreational facilities. Primary and Secondary Schools are available. The Company provides free furnished married or bachelor air-conditioned accommodation and air passage to home country with annual leave of 42 days.

In addition to free medical care, the Company also extends financial assistance to dependants attending schools up to completion of secondary school.

Clear handwritten applications (2 copies) in English giving full details of qualifications, training and experience as well as membership of professional associations and supported by copies of relevant testimonials, should be submitted to the following addresses:

- Human Resources Superintendent, Abu Dhabi Company for Onshore Oil Operations, PO Box 270, Abu Dhabi, United Arab Emirates.
- Department of Petroleum, PO Box 9, Abu Dhabi, United Arab Emirates.

SENIOR SALES CONSULTANTS

LONDON AND BIRMINGHAM £15,000-£30,000

An ideal opportunity to join a small expanding company with the option to become an integral part of the management team. Our business is in contract and permanent personnel placements. A fast moving and exciting environment for salespeople who prefer quick results and immediate rewards.

We need senior sales consultants with a successful track record for both London and Birmingham offices. You must be able to demonstrate the ability to:

- Be a self-starter possessed with the will to succeed
- Capable of exceeding your target regularly
- Have a strong personality and positive attitude
- Give client presentations.

Company benefits are excellent for the high performers. Please send a detailed history with performance achievements to the address below. All replies will be treated in the strictest confidence.

Box No 1289, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

(4218)

FREELANCE PROGRAMMERS

MACRO 11 ASSEMBLER, RSX 11M

6 months to one year

Contracts in London

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(4222)

S/38 ANALYST/PROGRAMMER

We are seeking an experienced RPG programmer to join a team engaged in development on our System 38.

Projects include microcomputer studies, comms. and videotex applications.

Candidates should possess at least 1 year of commercial experience using RPG in an on-line environment.

We offer a comprehensive benefits package which includes a competitive salary, flexi-time, BUPA and profit-sharing. Please write with brief c.v. or phone for an application form to:

The Personnel Officer
HOME BREWERY PLC
Deybrook
Nottingham NG5 6BU
Telephone Nottingham (0602) 269741

(4225)

PROGRAMMER/ANALYST WITH MANUFACTURING BIAS

Rapidly expanding, soundly based manufacturing and distribution company with 300 employees seeks a programmer/analyst to further develop software for ICL System 25 and computer services in general.

The successful candidate will be between 25 and 40 years of age with at least 2-3 years experience and a sound educational background. He or she will be capable of working independently and communicating with people at all levels. High standards, particularly in the presentation of documentation, are a prerequisite. Remuneration will be commensurate with age and experience.

Please apply in writing and in confidence to:

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£ 20,000 - 40,000 TAX FREE
OVER 12 MONTHS

We require:-

ANALYSTS
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SCIENTIFIC PROGRAMMERS
Have you gained 1-5 years' experience in a large IBM environment? A knowledge of the SAS package would be an advantage. Do you enjoy a challenge and, more importantly, do you want a little more challenge in your life? In this case, you could be doing this for the next 12 months, or you could be doing it for the next 12 months in a more interesting environment.

ANALYST/PROGRAMMERS
Do you have at least three years' experience in a large IBM environment? We need analyst programmers with solid experience in the following areas: PL/I, FORTRAN, COBOL, C, BASIC, ALGOL, etc. If you are a graduate of a technical university and have a degree in a relevant field, you could be doing this for the next 12 months, or you could be doing it for the next 12 months in a more interesting environment.

TRAINING CONSULTANTS
Are you strong in a computer shop with others? Do you have a minimum of two years' experience in large IBM mainframe environments plus at least one year's teaching/training experience including knowledge of MVS, PL/I, JES II, JES III, and CICS, together with PL/I and FORTRAN? You must be able to speak with students in English as a second language. The Client could be paying you £20,000 to £40,000 TAX FREE for your next twelve months' training work.

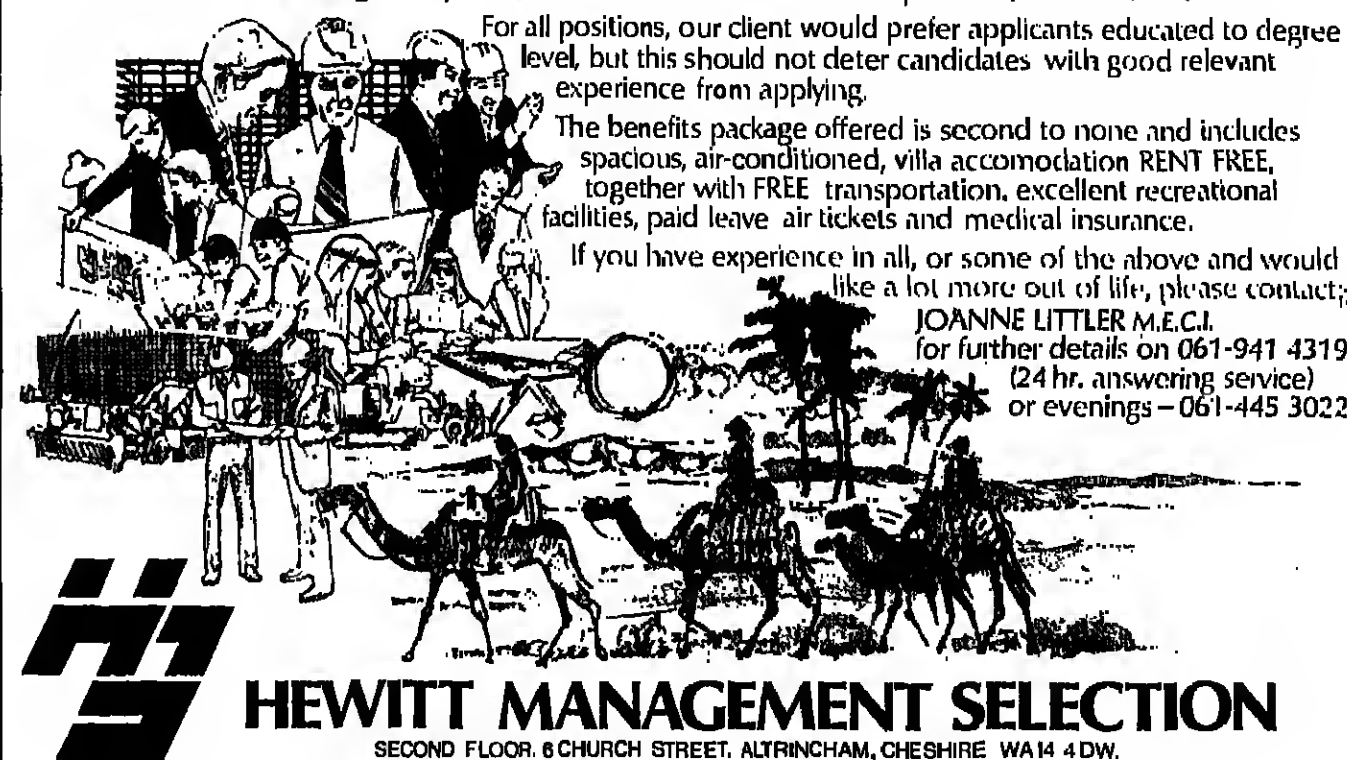
Our Client also requires Operational Analysts, Business Analysts, Technical Support Consultants, Database Design Analysts and Senior Consultants - salaries up to £40,000 TAX FREE.

For all positions, our client would prefer applicants educated to degree level, but this should not deter candidates with good relevant experience from applying.

The benefits package offered is second to none and includes spacious, air-conditioned, villa accommodation RENT FREE, together with FREE transportation, excellent recreational facilities, paid leave air tickets and medical insurance.

If you have experience in all, or some of the above and would like a lot more out of life, please contact:

JOANNE LITTLE M.E.C.I.
for further details on 061-941 4319
(24 hr. answering service)
or evenings - 061-445 3022



HEWITT MANAGEMENT SELECTION
SECOND FLOOR, 6 CHURCH STREET, ALTRINCHAM, CHESHIRE WA14 4DW.

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- ☐ COMPUTER PERIPHERAL EQUIPMENT
- ☐ LINE (DIGITAL OR ANALOGUE) TRANSMISSION

Qualifications should preferably be to HNC or C and G Standards.

A company car will be provided and overtime and standby allowance will be paid. Attractive salaries are offered and other benefits include a pension scheme, life assurance, private health cover, 20 days' annual holiday.

Telephone for application form or write with full personal and career details to:

Miles S. J. Sewerin, Sec/P.A. to Managing Director
CODEX (U.K.) LIMITED
114/116 Thornton Road, Thornton Heath CR4 6XB
01-889 2101



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You can be sure of hearing about many opportunities like these, U.K. and abroad; when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate

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171-177 London Road
Wokingham, Berks RG40 3AA
Surrey RG4 0AA
Tel: 01147 578000

(4226)

(4217)

(4219)

CONTRACTORS

IBM

IBM PL1 MVS JSP IMS Programmers
IBM Assembler/Cobol OS Programmers
Cobol CDS VM VSE Power Programmers
Cobol or VSAM Programmers
System 38 RPG 3 financial experience Analyst/Programmers
Cobol IMS DB/DC 3/4 years' exp. Analyst/Programmer or good Programmer
IBM 30XX VM370 or VM/SP Assembler Systems Programmer
IBM 30XX MVS VSAM JSP Cobol Analyst/Programmers
IBM System 38 RPG 3 Analyst/Programmers
IBM Database experienced Systems Analysts
IBM 3033/3035 Cobol IMS DB/DC ADKDL1 MVS/VM Programmers
IBM 4300 Series VM CDS/VSE CICS SDF Analyst/Programmers, 1 year contract (Illinois exp.)
IBM System 38 Analyst/Programmers
IBM MVS (MVS accounting exp.) +/- Focus Senior Analyst
IMS Cobol ADF Programmers
MVS Cobol Programmers
MVS CICS Cobol Programmers

OVERSEAS

USA

Systems Programmers with VM/VMS SAIL
Systems Programmers with IMS CICS MVS
Analyst/Programmers PL1 IMS DB/DC (permanent vacancy)

South Africa

Operational Support Person with George 3 experience
Business Analyst/Project Managers preferably with ICL background

Holland

Systems Designers with Mumps or Natural Adebex experience
Programmers with Gould SEL experience

Others

VAX 11/780 Fortran Analyst/Programmers
Mini/Micro Unix C Programmers
Data General AOS Infos Cobol Senior Programmers
HP 3000 Cobol Image View Query (December start) Senior Programmer
Univac 1100 TIP Cobol Project Leader
Datapoint RMS Database Programmers
CIT Modus Core/Cobol Momentum Programmers
Any Mini/Micro Pascal/C Programmers
Business Analysts: Evaluation of administrative systems for computerisation in large overseas mission based in UK
Technical Author software
Coral 66 or GEC 4000 Real Time various
Tandem Programmers
Data General AD/RS/OS or Cobol + Business Base Analyst/Programmer
PCP 11 RSX/11M+ RMS Fortran 77 Programmers
Intel 8008 Realtime Software design experience Analyst/Programmers
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Mini Consultant (Base) September start + extensive banking and up-to-date Microfilm knowledge

ICL

ICL 2800 IMS VME/B Cobol Analyst/Programmers
ICL 2800 IMS TPMS VME/B Cobol Analyst/Programmers
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ICL 2800 IMS Involving/billing systems experience Senior Systems Designer
ICL 2800 George 3 Cobol knowledge of VAX Senior Programmer
ICL 2800 VME/B SCL Technical Support Programmers
ICL ME 28 range Cobol MTS analyst/Programmers

For overseas contracts please contact Joe Lovejoy
For other contracts contact Kelly or Debbie

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Every contractor who works through us between 1st April and 31st October 1983 will be eligible for a chance to enjoy two weeks in Italy or Morocco for 2, paid for by Computer Search & Selection.
Don't miss out! register now with Debbie on 0442 40761 or Isabel on 01-681 8311.

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Hamilton House, Marlows,
Hemst Hempstead, Herts HP1 1BB.
Computer Search and Selection,
6th Floor, Carolyn House,
Dingwall Road, Croydon, Surrey CR0 9XF.

Computer Search
& Selection

The IBM SYSTEM34/36/38 Recruitment Specialists

System 34/36/38

March Computer Recruitment has been formed to provide a comprehensive professional recruitment service for users and personnel specifically involved in the IBM GSD sector of the industry.

Users seeking a solution to the problems of recruitment, and personnel currently looking for career guidance or advancement in this area should contact:

Richard Milsum on 01-354 1055 or evenings/weekends on 01-958 2553 for an informal and confidential discussion.

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COMPUTER 01-354 1055
RECRUITMENT

COMMUNICATIONS SALES NEW PRODUCT LAUNCH

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Salaries depend on age/experience and are reviewed very regularly. For City and West End of London, you can earn up to c. £13,250 p.a. (which includes payment in lieu of car) plus bonus and expenses; for North and South London, up to c. £10,500 p.a. + bonus and 1.8% S.I.A. Cavalier or similar car. Exceptional benefits include paid overtime, transferable pension fund, discounted BUPA for self and family, comprehensive relocation expenses as well as first class prospects for career progression.

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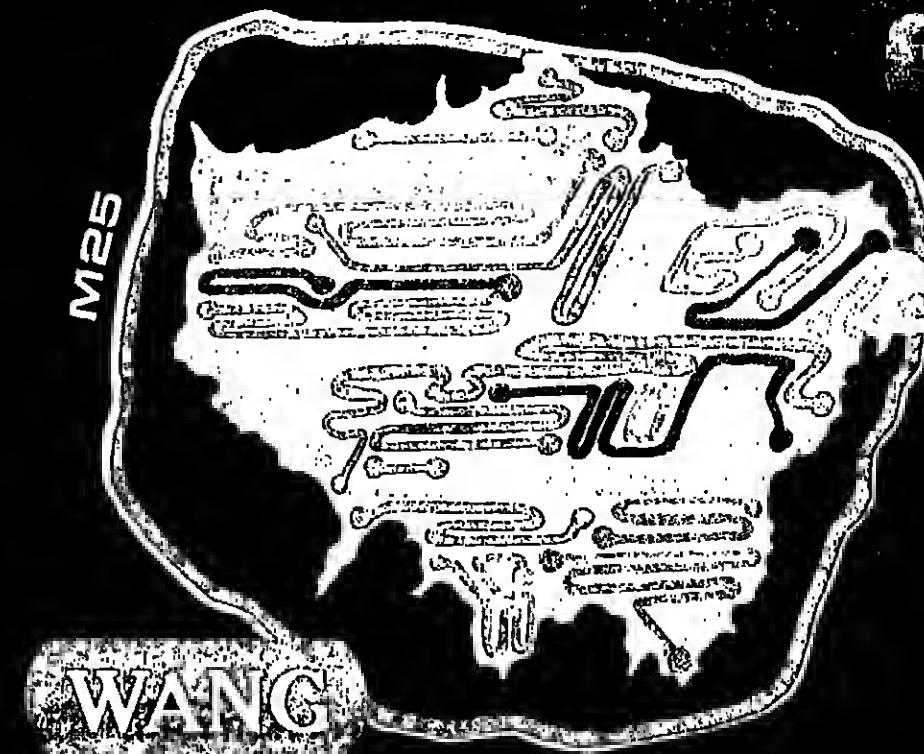
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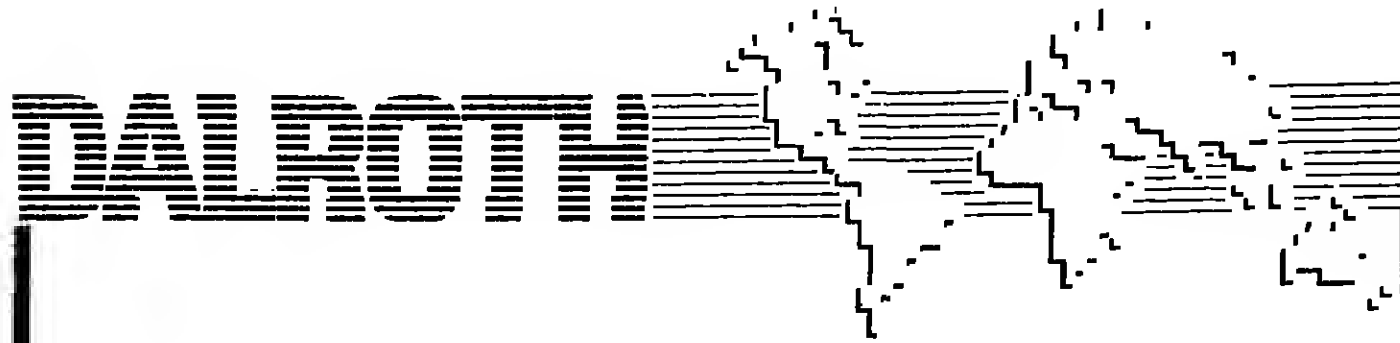
- O.S. Systems Programming related to Operations.
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If you are in the 23+ age bracket, ambitious, and would like the opportunity to be part of the Software Industry, by joining one of the market leaders, then contact Steven Knowles-Baker on 01-370 2012/3 today. Alternatively, write to Steven Knowles-Baker, 159A Gloucester Road, London SW7 4TH enclosing a brief C.V. All correspondence will be treated in the strictest of confidence.

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For further information, please contact Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947, from 8 a.m. to 10 p.m., Monday to Friday, or weekends, Jenny Dalrymple-Hay on Beaconsfield (04946) 4579 or Ian Murray West on Milton Keynes (0908) 563415 quoting Ref. 9993.

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The Computer Systems Unit at the GEC Research Laboratories, Wembley provides a central scientific computing service to a wide variety of users in the laboratories associated with the development and exploitation of advanced solid state technologies and CAD for very large scale integrated circuits, and currently is based on DEC VAX 780 and 750 machines together with APPLICON Graphics Equipment. The person appointed will be responsible for

day to day operations with a current staff of four operators and for ensuring maximum efficient utilisation of existing and future equipment. A good knowledge of DEC Equipment in an Engineering or Scientific Environment would be an advantage and applicants should have previous supervisory/operator management experience. Please apply to: G. D. Prichard, Administration Manager, GEC Research Laboratories, Hirst Research Centre, East Lane, Wembley, Middlesex HA9 7PP. (Telephone 01-904 1293 Ext 211) Quoting reference P1130.

S&C

UNIVERSITY OF CANTERBURY New Zealand PROGRAMMER-ANALYST COMPUTER CENTRE

Applications are invited for the above position in the University's Computer Centre. Applicants should possess at least a good Honours degree in Computing at a related discipline. Experience with any of the following Large Systems, PDP-11 computers and applications packages would be an added advantage. The duties will involve maintenance of applications packages on 3600 and PDP equipment and PPSO systems software work. A large part of the job will involve interaction with users. There will be some participation in a variety of development projects. The salary for Assistant Programmer-Analyst is on a scale from NZ\$18,123 to \$18,722 and for Programmer-Analyst is on a scale from NZ\$21,680 to \$22,684 per annum. Further particulars and Conditions of Appointment may be obtained from the Association of Commonwealth Universities (Acpsu), 34 Gordon Square, London WC1H 0PP. Applications close with the Registrar, University of Canterbury, Private Bag, Christchurch, New Zealand, on 29 August 1983.

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The Council is currently in the process of converting work from ICL 2904 to ME 29/64. When this is complete the next stage of development will include an expansion of on-line facilities, particularly for other departments.

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City of Cambridge

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BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
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Barton, Surrey GU2 5AS

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The starting salary for this position is negotiable and will be commensurate to the experience of the successful applicant.

Please write, enclosing c.v., to:
Miss Jan Drake, Molex EML, Church Lane East, Aldershot, Hants GU11 3ST.

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Required to rewrite payroll, accounts system from IBM 370 to NCR 8270 as well as setting up on-line stock control system. Knowledge of these applications and systems advantageous.

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Five years' experience in EDP. Good Cobol programming essential. Experience in systems analysis or as project leader preferable.

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Telephone 01-373 3063

Software Development

Berkshire: Salaries to £14K

An international manufacturer and supplier of hardware and turnkey systems has budgeted to augment significantly its professional and technical personnel during 1983. Consequently, a number of outstanding opportunities exist for Software Development Engineers and Systems Implementation Consultants. Your academic and work experience must include a good class B.Sc. degree and at least 18 months' software engineering experience where office automation products are under development. In particular, your software and systems skills must have been acquired within the following areas of activity: man-machine interfacing, local and wide area networks, word processing, and electronic mail-filing applications. Programming skills should preferably include fluency in a high level block structured language and an Assembler in a secondary skill. Ref: L 18 D

C & UNIX Programmers

London: Salaries to £10K

A highly respected Product Supplier is currently seeking to recruit several Systems and Applications Programmers to work on its UNIX-based range of products. Applicants, aged 22-26 years, should have graduated since 1980 with a good class honours degree in a numerate subject and have at least one year's commercial or industrial experience. Very recent M.Sc. or Ph.D. candidates are also encouraged to apply, particularly if their chosen subject matter was directly concerned with UNIX systems software. It is advantageous to be fluent in 'C' programming language and also offer PASCAL as a secondary language. Whilst the majority of programming work is undertaken in-house, candidates will be expected to work on clients' sites both before or during the implementation phase. Ref: L 18 B

Systems Software

Herts/Beds: Salaries to £14K

The Applied Systems Division of a leading Systems House and Consultancy requires additional Systems Software Specialists from Programmer to Senior Designer level. All applicants should be educated to B.Sc. standard and have at least two years' experience within a real-time scientific mini-computer or microprocessor environment. It is essential that you offer fluency in an Assembler and one or more of CORAL, PASCAL, BCPL or 'C'. For the senior positions, applicants should have experience in the specification, design and implementation of systems software. In particular, knowledge of language systems, interface handlers, X-25 networking techniques in local-wide area networks will be highly desirable. Ref: L 26 D

Expert Systems

Thames Valley: Salaries to £14K

Our Client's Research Centre, established in 1978, has recently taken additional premises in the Reading area. An immediate requirement exists for personnel to participate in the development of the Company's range of products and services. You are probably employed as a Systems Programmer, Designer or Consultant and have a minimum of B.Sc. degree in a numerate subject. Those who hold an M.Sc. or Ph.D. are encouraged to apply if they can combine an academic background with some relevant industrial or commercial exposure. The Company's specialist areas of activity demand that only potential employees have an in-depth knowledge of two or more: artificial intelligence, cybernetics, knowledge engineering, robotics, process and control engineering. Ref: L 18 E

Real-Time Programmers

Central London: Salaries to £9.5K

A leading Systems House and Consultancy is currently seeking to recruit additional Real-Time Programmers for its Central London Head Office. Suitable candidates should hold an honours degree and have at least 12 months' subsequent software programming experience in an industrial environment. Your programming skills should preferably include fluency in one or more of the following: PASCAL, C, FORTRAN, CORAL 66 or Assembler. Hardware experience is less important, but if you are currently working in a development role on PDP-11/VAX, Intel 8080/8 or Motorola 6800/68000 you will attract a salary premium. Opportunities for career development are excellent and depending on your background and career aspirations you will be considered for the areas of Communications, Process Control, Robotics or Defence. Ref: L 16 E

RSX/VMS Progs

London & H. Counties: Salaries to £13K

The Communications Division of a leading Systems Supplier and Consultancy is currently seeking additional Systems Programmers. Suitable applicants should be graduates with a minimum of two years' software or systems design experience within a PDP/RSX-11M or VAX/VMS environment. It is essential that you should offer fluency in Assembler and that you are fully familiar with the internals of RSX-11M or VMS. Additional knowledge of a high level language e.g. FORTRAN or PASCAL would be a distinct advantage, as would experience of working within a data communications or distributed processing environment. Applicants who demonstrate management potential or those who already have some project leading experience will be considered for more senior positions within the project teams. Ref: L 26 C

Compiler Development

London & H. Counties: Salaries to £14K

A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated in the development of either a Pascal or Ada compiler, preferably for 16-bit micros. Familiarity with all phases of compiler development is strongly desirable with particular emphasis placed on Code Generation and Optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages through to the creation of a fully self-supporting compiler. Ref: L 25 D

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In moving to this attractive, purpose built site, you will benefit from a particularly competitive salary, productivity bonus, company car and, if

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Salary will be in the range £8,300 to £12,000 with 10% scale for Research and Academic staff with appropriate benefits.
Applications, including details of three referees, as soon as possible to: Prof. J. J. Adkinson, School of Engineering, The Open University, University of Essex, Haverhill, Essex BN1 9QF.

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Our client, one of the fastest growing multinationals in the FORTUNE list of the top 500 companies, is a minicomputer manufacturer with a public commitment to continuing expansion which includes the provision of top quality turnkey services. To this end an independent systems division has been set-up in the UK with European wide responsibilities to offer systems design, special purpose software, systems integration and other services to large corporations across a wide variety of commercial and technical applications.

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In the first instance contact Chris Denington on 01-631 4184 or write to: A & A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1N 5DF.



(3130)

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Please complete this application form in detail (attach CV if available) and mail directly to us quoting ref MZ

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Name _____ Telephone: Home _____
Address _____ Work _____
Marital status _____
House Owner Yes/No _____
Place of birth _____
Date of birth _____
School Attended _____
Exams passed _____
Any other qualifications _____

EDUCATION

University/Colleges _____
Class and subjects _____

WORK HISTORY

Type of position sought _____
Geographical preferences _____
Type of position sought _____
Present job title _____
Current salary _____
Reporting to: _____
Employers name and address _____
Job description _____
Minimum salary considered _____
Date started _____
Notice required _____
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Career opportunities are excellent within an interesting and challenging working environment.

For further information, please telephone Jenny Dalrymple-Hay or Ian Murray-West on 01-493 2947, from 8am to 10pm, Monday to Friday, or weekends, Jenny Dalrymple-Hay on Beaconsfield (04946) 4579 or Ian Murray-West on Milton Keynes (0908) 563415 quoting Ref. 9995.

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DATA PROCESSING
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 Reference 5/3/83.
SHETLAND ISLANDS COUNCIL

INTERNATIONAL ORGANISATION in Geneva, Switzerland
baaka
JUNIOR
PROGRAMMER/STATISTICIAN
 with University degree in economics, statistics, computer science, or mathematics. Excellent knowledge of English and French and good knowledge of the other. Experience in using computers for statistical purposes including programming in a high level language such as FORTRAN or BASIC and knowledge of job control language (JCL).
 Only nationals of the following countries should apply: Brazil, Gabon, Iceland, Iran, Japan, Madagascar, Niger, Norway, Portugal, Rwanda, Seychelles, Singapore, Trinidad and Tobago, Zambia, Zimbabwe.
 Applications, quoting reference V/Stat/27/83 and with complete curriculum vitae should be sent to: P/Dev, Case Postale 600, CH 1211 Geneva 22, Switzerland, before 2 September, 1983.

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PROGRAMMER/ANALYST
 ★ DEC PDP11 RSTS/E, BASIC(+)
 ★ ANY BACKGROUND

AND AS WE HAVE RUN OUT OF SPACE IF YOU THINK YOU WOULD BE ABLE TO HELP US IN OUR OTHER REQUIREMENTS PLEASE CONTACT BILL SIMPSON OR SHEILA BELL ON 0742 730191 (or 0204 882982 evenings)

GANCC
 EMPLOYMENT AGENCY LONDON NEWCASTLE

GMS
 A member of the Johnson and Pugh Group

GMS Computing Ltd
 Smithfield House
 Sheffield S12BU
 Tel: (0742) 730191

Sales Executives

Anadex Ltd., the leading peripheral printer manufacturer, is expanding its UK sales organisation and has immediate vacancies for two experienced peripheral Sales Executives to cover the South of England and the Midlands/North area of the UK.

These two key additions to the Sales Department will be required to expand printer sales through a vigorous and well established Distributor network and also by direct sales to key accounts.

The ideal candidates will be successful sales people with at least 3 years experience in the UK peripheral marketplace. A sound technical background and familiarity with the end user dealer/distributor business environment are also essential. Preferred age is 25-35 years. Ideal locations would be West of London for the Southern Area position and the Birmingham/Manchester region for the Midlands/North position.

These are key appointments within a sound and rapidly expanding company and will play a vital role in the success of new products currently under development.

A good basic salary will be offered with OTE packages around £20 K. A company car and usual large company benefits will be included.

Please apply in writing to the address below or call Peter Brown for further details.

Anadex Ltd.
 Weaver House, Station Road, Hook, Basingstoke, Hants, RG27 5UT
 Tel: Hook (025 672) 5401

MICRO CHALLENGE

£ five figures plus car

We are seeking an experienced micro specialist to assume full responsibility for the creation of a nationwide stand-alone micro system at our retail outlets, of which there are approx. 80 with many more to come. Responsibilities will also include the ongoing management of the micro-computer dept. at our head office in West London.

We regard this as a key appointment. An excellent salary, dependent totally on experience, will be negotiated, and a car will be provided. This is a career opportunity in a fast-growing company in a growth industry. The successful applicant will be dedicated, hard-working, mature in outlook, highly capable and results-oriented.

To obtain full information and to apply, please send full c.v. to:

Kall-Kwik PRINTING

The Operations Manager
 KK Printing (UK) Ltd
 Kall-Kwik House
 Tannymore Road, Henwell
 London W7 1LH

URGENT CONTRACTS

PDP11/RSTS/BASIC PARIS
 VAX/FMS/FORTRAN
 DOS/VSE/CICS/VTAM/SYSTEMS PROG.
 HP3000/COBOL
 VAX/FMS/BASIC
 RAMIS (COBOL OR PL1)
 EIS MODELLING
 ICL/TPS/COBOL
 VAX/FORTRAN/ARBAT

NOW
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MONTREAL ASSOCIATES (SYSTEMS) LIMITED

01-553 2844 (4 lines) emp. agy.
 98-100 High Road, ILFORD, Essex IG1 1DS

ARTIFICIAL INTELLIGENCE

The rapid development of information technology and particularly information processing stemming from research in artificial intelligence is creating opportunities for its practical application in industry. ICI has already developed a number of expert systems and now require additional staff for application projects and to carry out investigations into alternative forms of knowledge representation. Work is also needed to integrate knowledge-based systems into wider operational systems for use by non experts. Preference will be given to candidates with training in AI concepts and practical experience of AI languages and who have demonstrated a research capability.

The work will be carried out at Runcorn in a group with extensive experience in the development of decision support systems and robotic systems. Excellent interactive computer facilities exist in a specialist laboratory. Some travel will be required to link with the AI community and universities and other parts of the Company. Prospects for career development through application projects within the Company are good.

Assistance with removal expenses will be provided if appropriate. Profit Sharing and other big company benefits. Salary depending upon age and experience.

For an application form please ring Steve Kemp or Sylvia Yates on Alderley Edge 562828 Ext. 5203 or 5221.

IMPERIAL CHEMICAL INDUSTRIES PUBLIC LIMITED COMPANY



URGENT CONTRACTS

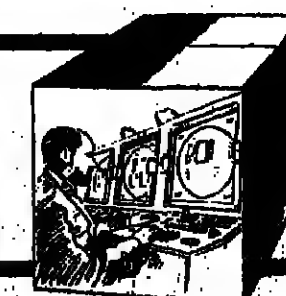
CORAL 66 -
 GEC 4000 (any)
 REAL-TIME
 ALL SKILLS LEVELS
 REQUIRED

RING: DEBBIE or KELLY
 on (0442) 40761

General Microcomputer Systems Limited
 548 Chiswick High Road, London W4 6RG Tel: (01) 995 4598
 General Microcomputer Systems Limited is a young and growing company. We provide a complete range of services in the use of microcomputers. Our customers vary from large corporations to the small businessman.
 We need to recruit the following personnel to expand our existing team.
SALES PERSONNEL
 Ideally the applicants will have experience in selling to large organisations. We will, however, also consider applications from graduates who feel they would like to enter this challenging and exciting career. Necessary training will be given.
PROGRAMMERS
 An experienced PASCAL programmer who will be capable of rapidly accepting responsibility for a major project. The system currently runs on a microcomputer network and is written in UCSD Pascal. Planned developments include transferring and upgrading the system on to a suitable mini computer.
 We also have vacancies for programmers with experience in using popular packages (Dbase II, MicroModeller, etc.) on microcomputers.
 Please send full details to the following address:
 General Microcomputer Systems Limited
 548 Chiswick High Road
 London W4 6RG

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Cheadle Heath Division

SYSTEMS



SEE PAGE

(4091)

ME29 ANALYST/PROGRAMMERSOUTH LONDON
TO £10,000

HARP HEATING are one of the U.K.'s largest independently owned installers of commercial and industrial heating system. The operation also covers the supply of equipment to the DIY market. The company is currently utilising ME29 hardware running TME, with plans to install a further model 45 in purpose-built offices in South London. Current projects include a large on-line order processing system, and a feasibility study has been completed to convert a batch stock control system to on-line. Due to this development, the company now require an additional ANALYST/PROGRAMMER to supplement their small team and the ideal candidate will have one to three years' experience gained in an ICL 2904 or ME29 environment. He or she will be heavily involved in a varied range of motor projects from the design stage through to implementation.

MIDLANDS OPPORTUNITIESALL LEVELS
£8-£16,000

There are currently a wide and interesting range of opportunities for systems and programming staff in the Midlands. We have been requested by our clients to locate SOFTWARE DESIGNERS, SUPPORT STAFF, TEAM LEADERS AND ANALYST/PROGRAMMERS with a minimum of 12 months' commercial experience. The kind of skills required would typically be included in the following: DATABASES, BASIC, BASIC + or + 2, RSTS/E, RSX11M, VAX VMS, HP3000 and utilities, all IBM. If your career is leading nowhere, or you're bored or in a rut a quick call to our BIRMINGHAM office is needed to arrange a confidential discussion and objective assessment of your potential with no obligation.

**Targa Computer Recruitment**6 Liverpool Street London EC2M 7NH
Monaco House Bristol Street Birmingham B5 7AS**INTERNATIONAL CONSULTANCIES
ANALYST/PROGRAMMERS**

£10K-£20K + EXPENSES + TRAVEL

Several of the larger, well-established consultancies are currently undergoing massive recruitment campaigns. Their requirements are as FLEXIBLE as your needs. If you have any three of the following attributes - COBOL, PL/1 CICS, DL/1, ADABAS, IDMS, IMS DB/DC, EASYTRIEVE, VOLLIE, ROSCOE, ADF, TSO/SPF, UFO, MK IV, SHADOW, ADS/O - you could soon be working in this fast and rapidly expanding environment. Obviously the more versatility you can offer our clients, the better the salary they can offer you. At a more senior level, salaries can be up to £20K plus expenses and European travel. These are ideal opportunities for programmers with around two years' experience wishing to expand their knowledge, as extensive TRAINING will be provided. If you're interested in getting out of that day-to-day end-user rut, contact SIMON KONING to discuss these exciting opportunities further.

TANDEM PROGRAMMERSCITY
C. £9,000 + BENEFITS

Our clients are an important City-based member of the financial sector. Due to a policy of carefully controlled growth and a healthy demand from users for the provision of sophisticated information and control systems they require additional members of staff. Hardware is the TANDEM range with COBOL and SCOBOL together with all the associated utilities including PATHWAY, TMF, ENFORM and ENSCRIBE under the latest operating system. It is essential for candidates to have had some exposure to the TANDEM range although the bulk of their experience may have been gained on other equipment. A superb RANGE OF BENEFITS is offered which include LOW-RATE MORTGAGE, NON-CONTRIBUTORY PENSION, GENEROUS LUNCHEON VOUCHERS and others.

**Sales Opportunities
with a world-leader in
Computer Graphics**

As one of the world's leading manufacturers of computer graphics products and systems, CalComp already holds the No. 1 position in a number of areas in what is one of the most dynamic and competitive sectors of today's computer industry. The company's advanced and expanding product range currently includes pen plotters, electrostatic plotter/printers, digitizers, interactive graphic displays and complete, minicomputer-based turnkey CAD systems, all of which combine to put us in a position where we are now set for a period of rapid and sustained expansion. To help us achieve our ambitious goals therefore, the following opportunities have now been created for suitably qualified sales engineers.

Product Manager Sales Engineers**Graphic Displays**
c £22,000 + Car

This is an ideal opportunity for someone with several years experience of selling sophisticated graphic display systems to now assume responsibility for developing the UK sales of an advanced new range of raster scan displays plus an established line of vector refresh systems. Both product lines are particularly suited for use in CAD/CAM, simulation and C* etc. The successful applicant will therefore have a thorough appreciation of the different graphic display technologies and will be familiar with selling in multi-vendor environments to Government departments and institutions as well as to end-users in industry.

In addition to normal day-to-day selling activities, the job will involve identifying and quantifying new market areas, reporting back on desirable product developments, agreeing pricing strategies and liaising on hardware and software support requirements.

Graphics Peripherals
£16-20,000 + Car

A number of rewarding openings have recently been created for experienced sales engineers to take over some existing accounts and to develop new sales activity in various parts of the UK. Generally working from home, successful applicants (male or female) will be responsible for following initial product training, for selling CalComp's wide range of drum and flatbed pen plotters, electrostatic plotter/printers, controllers and digitizers, mainly into scientific, engineering and technical computer application areas.

You should therefore have a proven track record in selling computers, peripherals, software or other electronic equipment, have a technical background and preferably, though not essentially, an understanding of or experience with CAD. A Maths or Computing Degree or other similar qualifications would also be desirable but by no means essential.

Sales Support Engineer

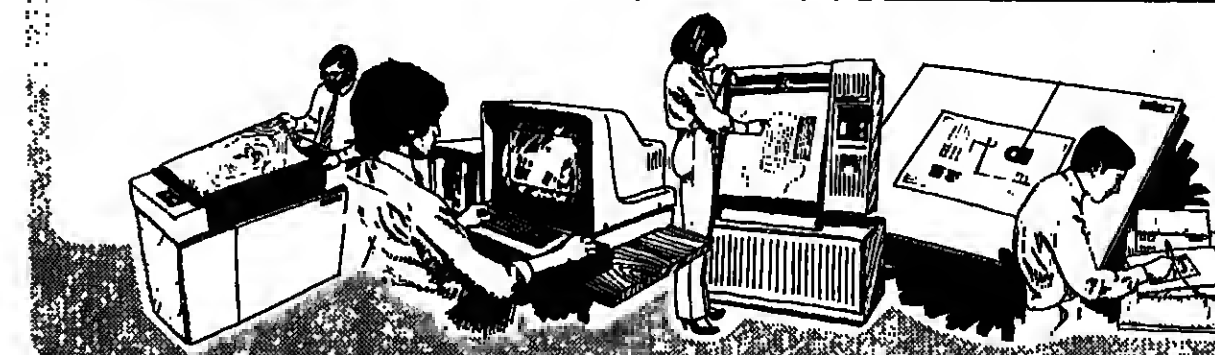
c £10,000 + Benefits

This newly created position within CalComp's Graphics Peripherals Division offers an ideal opportunity for a suitably qualified digital electronics engineer, or programmer, to move into sales.

Based in Bracknell head office, the successful applicant will be responsible for providing technical and pre-sales support in various forms to the territory sales engineers. The job will include a performing benchmarks, organising in-house sales demonstrations, answering technical queries from customers and generally taking and qualifying sales enquiries for the sales force. It also includes assisting in our busy exhibitions schedule by taking responsibility for the "logistics" of exhibitions as well as attending them in a sales capacity.

Applicants should be personable, able to communicate well verbally and should have a good knowledge of technical computing. A formal qualification, such as ONC/HNC in Maths, Computing or a science subject, are desirable but not essential.

To apply for any of the positions described here please write to or ring:-
Denis Avery, UK Sales Manager, Graphics Peripherals Division, CalComp Ltd., Cory House, The Ring, Bracknell, Berkshire RG12 1ER. Tel: 0344-50211.

CALCOMP
INTERNATIONAL DIVISION**SANDERS****QUALITY CONTRACTS FOR TOP CONTRACTORS****JULY, AUGUST - PHONE US NOW****ANALYSTS, DESIGNERS, SYSTEMS PROGRAMMERS
LONDON/HOME COUNTIES**

- | | |
|---|------------------|
| <input type="checkbox"/> ANALYST WITH KNOWLEDGE OF MSA ACCOUNT RECEIVABLE | TOP RATES |
| <input type="checkbox"/> SYSTEMS ANALYST IBM PREFERRED, ON-LINE EXPERIENCE ESSENTIAL, FINANCE SYSTEMS | c.£525 p.w. |
| <input type="checkbox"/> LEVEL 6 TPS DESIGNERS | c.£500 p.w. |
| <input type="checkbox"/> ANALYST IBM, INSURANCE EXPERIENCE ESSENTIAL | c.£525 p.w. |
| <input type="checkbox"/> HONEYWELL DPS8 DESIGNERS URGENTLY REQUIRED | c.£800 p.w. |
| <input type="checkbox"/> TANDEM SOFTWARE SPECIALIST | c.£525 p.w. |
| <input type="checkbox"/> P.D.P. RSX 11 SYSTEMS PROGRAMMER - DECNET USEFUL | c.£525 p.w. |
| <input type="checkbox"/> SYSTEMS ANALYST BANKING & FOREIGN EXCHANGE ESSENTIAL | c.£550 p.w. |
| <input type="checkbox"/> ICL ANALYST VME/B TPMS IDMS | c.£500 p.w. |

- CONTACT -

CONTRACTS & PROJECT DIVISION

on 01-580 3848 day to 6.00 pm

**PROGRAMMERS,
ANALYST PROGRAMMERS
LONDON/HOME COUNTIES & EUROPE**

- | | |
|---|------------------|
| <input type="checkbox"/> GERMANY, HONEYWELL LEVEL 6, COBOL | c.£400 p.w. |
| <input type="checkbox"/> HONEYWELL LEVEL 6, DPS 8 ASSEMBLER COBOL PASCAL | c.£555 p.w. |
| <input type="checkbox"/> HONEYWELL LEVEL 62 COBOL (MIDLANDS) | c.£450 p.w. |
| <input type="checkbox"/> IBM PROGRAMMERS COBOL, CICS, DL/1 | c.£450 p.w. |
| <input type="checkbox"/> IBM PROGRAMMERS DOS/VSE PL/1 DL/1 | c.£450 p.w. |
| <input type="checkbox"/> IBM PROGRAMMERS SYSTEM 38 RPG III | c.£400 p.w. |
| <input type="checkbox"/> IBM MVS COBOL PROGRAMMERS (H. COUNTIES) | TOP RATES |
| <input type="checkbox"/> SENIOR PROGRAMMERS IBM MVS IMS DB/DC PL/1 or COBOL S. LONDON | c.£500 p.w. |
| <input type="checkbox"/> PROGRAMMERS/ANALYST WANG COBOL LONDON | c.£475 p.w. |
| <input type="checkbox"/> PROGRAMMERS CIS COBOL | £Neg |
| <input type="checkbox"/> ANALYST PROGRAMMERS CORAL REAL TIME DESIGN & MASCOT | £Neg |
| <input type="checkbox"/> ANALYST PROGRAMMERS DG BUSINESS BASIC AND COBOL | £Neg |
| <input type="checkbox"/> VAX FORTRAN OR BASIC OR COBOL URGENTLY REQUIRED PROGRAMMERS | TOP RATES |
| <input type="checkbox"/> PROGRAMMERS VAX SYSTEL | c.£475 p.w. |
| <input type="checkbox"/> UNIX C PROGRAMMER | £Neg |
| <input type="checkbox"/> LOS ANGELES DPS7 PROGRAMMER | £Neg |
| <input type="checkbox"/> DOS/MVS VM/CMS PL/1 OR COBOL PROGRAMMER | £Neg |
| <input type="checkbox"/> ICL ANALYST PROGRAMMERS VME/B TPMS IDMS | c.£450 p.w. |

DOEWC No. SE (A) 204

**A CHALLENGING ROLE FOR ANALYSTS IN
MANUFACTURING SYSTEMS CONTROL**

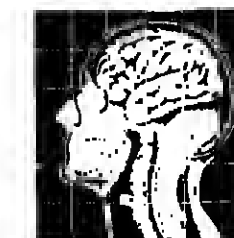
Pickier International has achieved considerable success in extensive research and development work on sophisticated equipment for diagnostic imaging, such as X-ray, computer tomography, ultra-sound and nuclear magnetic resonance and this has enabled us to play a leading role in the fight against disease. As a result of this we are now embarking on a major production programme.

The sophisticated nature of this high technology equipment demands an exceptional level of control at every level of manufacture. Now, with the introduction of modern

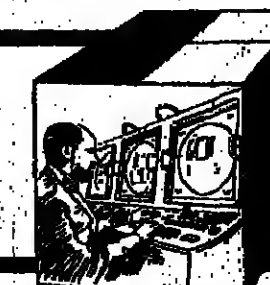
computer-based manufacturing systems at our Wembley headquarters, we require a high calibre Systems Analyst to carry out detailed analysis of our existing production operations and develop appropriate systems.

It's a challenging role calling for a man or woman with at least five years' programming and analysis experience—preferably gained on MAPICS or a similar system, and including a minimum of one year directly related to manufacturing control systems.

We offer a very competitive salary and all the benefits of working for a major company within the GEC Group, one of Britain's largest high technology organisations. Write with details of your experience or telephone Dick Harrison on 01-904 1288. Pickier International Limited, P.O. Box 2, East Lane, Wembley, Middlesex, HA9 7PR.

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Selling technology
Cheadle Heath Division**SYSTEMS**SEE
PAGE 47

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

Your drive and our drives

could have the makings of a great team impacting significantly on the U.K. market. Our client, a world leading manufacturer of high quality, high performance disc drives, has created further opportunities for professional sales executives and support engineers.

SALES EXECUTIVE

A professional sales executive with several years OEM experience in selling major manufacturers disc drives or mini computer systems, preferably with an engineering or technical background.

A demanding position needing drive, enthusiasm and energy to take the current user base beyond its anticipated market penetration.

A commanding basic salary of £10-£12K with quote earnings of over £18K. However, for the first six months a substantial package will be guaranteed as well as a 2L company car.

(Ref KMS)

For further information on these positions please contact Kathy Sinclair or Chris Bond on 01-637 9611.

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

SUPPORT ENGINEER

An engineer with several years systems experience and/or substantial disc expertise is required for a pre/post sales support role both in the U.K. and Europe. In addition, a self-motivated individual will have the scope to organise spares, provide technical liaison to the factory and become involved in direct sales.

This role is as interesting as it is wide ranging and career opportunities will be restricted only by the limit of the individual's ambition. Salary £12K-£14K+car negotiable. (Ref BOND)

MANAGEMENT & EXECUTIVE SELECTION

SOFTWARE TECHNOLOGY

LONDON W.C.1

£6,000/14,000
LONDON WAITING

Our client is one of the "Blue Chip" System Houses in the UK. The Software technology Group is seeking professional software Designers and Programmers to work on defence contracts. Applicants can expect a high level of Technical interest in their work together with progressive career development within a growing organisation. Candidates must have a numerate degree plus defence systems experience.

SOFTWARE/SYSTEMS DESIGNERS

Candidates will need to have at least 5 years experience which must include CORAL and MASCOT. Contest and VAX experience would be an advantage. Candidates should have a working knowledge of structured Analysis and Design Techniques together with Software Engineering methods and procedures. Additional skills should include Team Leading and Technical Performance monitoring and estimating. Successful candidates should expect to support business development activities and contribute to the management of the Software Group.

PROGRAMMERS

Ideally candidates will have a minimum of 1 years Real Time Programming preferably using CORAL with MASCOT methodology. FORTRAN would also be useful particularly if coupled with Anathenetics or Scientific background related to Signal Processing, pattern recognition, etc. The Company offers many advantages to the successful applicants, namely: professionalism, training, career development and an excellent income package.

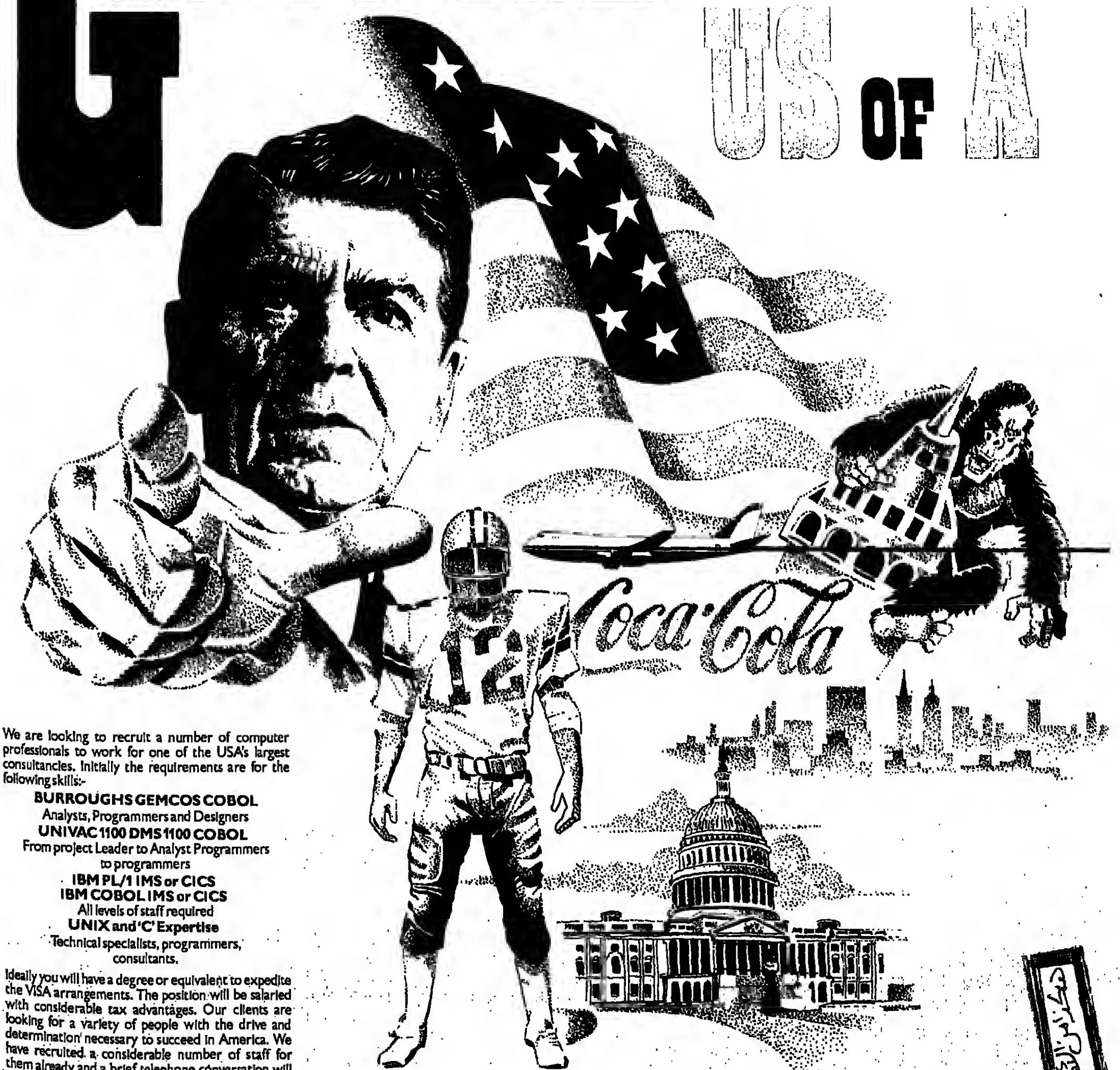
DATAMATICS
RECRUITMENT SERVICES

01-399 9183

Datamatics, Freepost, Surbiton, Surrey KT6 5BR

GO TO THE

US OF A



We are looking to recruit a number of computer professionals to work for one of the USA's largest consultancies. Initially the requirements are for the following skills:-

BURROUGHS GEMCOS COBOL

Analysts, Programmers and Designers

UNIVAC 1100 DMS 1100 COBOL

From project Leader to Analyst Programmers to programmers

IBM PL/1 IMS or CICS

IBM COBOL IMS or CICS

All levels of staff required

UNIX and 'C' Expertise

Technical specialists, programmers, consultants.

Ideally you will have a degree or equivalent to expedite the VISA arrangements. The position will be salaried with considerable tax advantages. Our clients are looking for a variety of people with the drive and determination necessary to succeed in America. We have recruited a considerable number of staff for them already and a brief telephone conversation will offer you an excellent insight into working in the USA. Please contact Barbara Basquill or Janet Chilvers on 01-734 7394 during working hours or on 0787-237116 in the evenings or at weekends.

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WOODWARD
ASSOCIATES**



A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET LONDON W1V 7PA
TELEPHONE: 01-734 7394 24 HOUR ANSWERPHONE

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RECRUITMENT OPPORTUNITIES

SENIOR ANALYST/PROGRAMMER
BURREY
A manufacturing organisation are looking for an experienced analyst/programmer to fulfil a demanding role within their IT department. The required candidate must have good interpersonal skills, knowledge of on-line techniques and COBOL experience. Graduates preferred. J.7680.

WANG ANALYST/PROGRAMMERS
LONDON
Several vacancies exist in North London for people with at least two years' experience of RPO II and WANG VS systems. J.7629.

DEC ANALYST/PROGRAMMERS
SURREY
This well-known company require two analyst/programmers with three to four years' experience of either BASIC or COBOL in a commercial environment. J.7630.

O.G.H.P. PROGRAMMERS
MIDDLESEX
Various positions exist for programmers, with BUSINESS BASIC or COBOL experience, within this successful organisation. J.7482.

DEC PROGRAMMER
LONDON
This South London-based company require a programmer with two years' COBOL experience in a commercial environment. J.7594.

H.P. PROGRAMMERS
LONDON
Several vacancies exist for programmers with three years' COBOL and at least one year's experience of H.P. 3000 systems. J.7411.

ANALYST/PROGRAMMER AND PROGRAMMER
WEST LONDON
COBOL with Database and Communications experience desirable, relocation package available. R.7302.

SENIOR SYSTEMS ANALYST
HERTS
Minimum of four years' insurance experience essential, with Database and T.P. knowledge. R.7597.

SENIOR PROGRAMMERS AND PROGRAMMERS
CITY
International Bank require personnel with COBOL to work on new development projects. Ideally with CICS and DL1 but will consider applicants with either. Banking experience not essential. R.7485.

SENIOR SYSTEMS ANALYSTS
LONDON
Well-known company are looking for business and technical analysts with COBOL, CICS and DL1 experience. R.7445.

ANALYST/PROGRAMMER
CITY
RPG II and International Banking experience required. Position offers travel and an opportunity to be trained on CICS/DL1. R.7484.

UNIVAC SYSTEMS PROGRAMMER
LONDON
Extensive 1100 series software knowledge. ASSEMBLER essential. Communications and Network experience advantageous. Some international travel is involved. G.7428.

SYSTEMS ANALYST
LONDON
A minimum of five years' DP with at least two as an analyst, experience of either Bureau, Software House or knowledge of BURROUGHS hardware is essential. G.7288.

SENIOR SYSTEMS ANALYST/PROJECT LEADER
SURREY
At least eight years' DP experience three of which as systems analyst. Recent knowledge of Pensions and/or Financial/Accounting systems. G.7610.

BURROUGHS SENIOR PROGRAMMER
LONDON
Five years' medium systems experience plus good knowledge of CMS, B80 systems for Banking organisation in the City. G.7261.

CONTRACTS

TANDEM PROGRAMMER
LONDON
Financial organisation in the City urgently seek experienced TANDEM programmer on new project. Substantial bonus upon completion of project. G.7112.

TANDEM PROGRAMMERS
CITY
City company has requirement for several programmers with NS1/2 Guardian experience for long assignment.

ICL IOMS/TPMS
Several vacancies exist at various locations for in depth and practical experience.

SYSTEMS PROGRAMMERS
We require staff with extensive ASSEMBLER experience on Minis. Of particular interest are those who have worked with T19000 or INTEL 8086. We also require an RSX 11M systems person with ASSEMBLER and FORTRAN.

COBOL IOMS DB/DC
We have several requirements for both analyst/programmers and also team of project leaders with the above skills.

SYSTEM 38 PROGRAMMER/ANALYSTS
A number of requirements exist including a long-term banking project in the City.

SYSTEM 34 RPG II ANALYST/PROGRAMMERS
Our client requires three analyst/programmers with the prospect of IBM System 36 experience.

MBASIC/CIS COBOL
We have three clients who have requirements for analyst/programmers with experience with both or either of these languages.

MVS SYSTEMS PROGRAMMER
To advise on VM/SP to MVS/TSO conversion.

COBOL/PRIME/PRIMOS ANALYST/PROGRAMMER
To assist our client in the design and implementation of a system for the Motor Industry.

COBOL CICS DL1
We have a number of vacancies in and around London for people at all levels with the above skills.

datascene

Datascene International Limited
Sceptre House 169-173 Regent Street London W1R7FB
Telephone: 01-439 7871 Telex: 25851

Ferranti Computer Systems Ltd.

Cheadle Heath Division



Your software skills are worth their weight in hardware.

up to £14K... attractive benefits... excellent prospects
MANCHESTER... realistic house prices and a 25% saving...
your next career move to a rewarding way of life!

The first ever commercial programmable computer was built by Ferranti in Manchester... and today we continue to make a major contribution to this leading position in real time computer systems for commercial and military applications worldwide.

As a creative force in Electronics, we have constantly pioneered new innovations in real time computer systems and a wide variety of future generation Sonar, Training, Communications and Energy Management Systems are currently under development.

To play a key part in our exciting growth plans we are very interested in hearing from SOFTWARE SPECIALISTS and SOFTWARE ENGINEERS with a degree in an Engineering Subject, Mathematics or Physics and significant experience in real time computer systems.

Informal discussion... please contact Colin Roberts, Career Development Manager on 061-428 0771 during office hours and 061-428 0194 after 5 p.m. and at weekends, or write to Colin, quoting reference 329/33, at Ferranti Computer Systems Limited, Bird Hall Lane, Cheadle Heath, Stockport SK3 0XQ.

FERRANTI
Selling technology

COMPUVAC

CICS - CICS - DL1 CICS
If you have sound experience in CICS and/or DL1 you are in demand. Currently have a wide range of clients in all areas who are looking for your skills. Vacancies exist in progressive commercial organisations, banks, consultancies, etc. Please call for further information. REF. MB/CT

IBM SYSTEMS PROGRAMMERS
UK or ABROAD
A solid 12-month Systems Programming experience can earn you an interview with one of the numerous mainframe installations currently on my files. In-depth knowledge of at least one of the following is required: OS/VS, DOS/VSE, VM, CICS, ACF/TAM or DL1. Many of these companies are implementing the latest Hardware and Software releases and now is the time to update your skills. REF. MB/CT

IBM SYSTEM 38 VARIOUS AREAS
We have several clients either running System 38s or in the process of installing new machines. They urgently require RPGIII expertise and will pay highly for the right people. Requirements range from Programmer through to Senior Analyst/Programmer (with increasing responsibility) and also include consultancies. REF. MB/CT

WE HAVEN'T GOT ENOUGH SPACE!
With over 120 vacancies for IBM staff currently with us we have a problem. We cannot fit each job in enough detail to attract the right applicant. If you are ambitious, presentable and are thinking of progressing your D.P. career, call MARTIN BARRY or RICHARD COATES to discuss your requirements and find the right position.

AIMS ANALYST/PROGRAMMERS
LONDON
Two banks in the City are currently seeking a range of ANALYST/PROGRAMMERS with AIMS experience to work on DEC PDP 11 and VAX equipment. A variety of Banking, Financial and Commercial Systems are being developed using AIMS. Candidates with BASIC 4-7-2 experience, prepared to train on AIMS, will be considered. Usual banking benefits apply. REF. JH/CW

BASIC + 2 PROGRAMMER
MIDOX
Lively young PROGRAMMER with 18 months' BASIC + 2 experience is required by marketing company developing Systems on DEC PDP 11, RSTS/E and WANG VS100 equipment. You'll be mixing with creative people in modern offices very near transport facilities. Good perks include ANNUAL BONUS. REF. JH/CW

DEC BASIC +1+2 or COBOL experience?
LONDON and HOME COUNTIES
POP and VAX PROGRAMMERS AND ANALYST/PROGRAMMERS are required by clients - Software Houses, Manufacturers, Insurance Companies, Financial Houses, Bureaux, etc., both large and small - in Greater London and surrounding areas. If you're thinking of a change, please contact COMPUVAC'S DEC CONSULTANT - JILL HARVEY, NOW!

MINI AND MICRO PROGRAMMERS
ALL AREAS
We currently have many vacancies for Mini/Micro Programmers with a minimum of 18 months' experience using COBOL/FORTRAN/BASIC. Positions exist within software houses, financial and commercial environments. Perks include MORTGAGE SUBSIDIES and COMPANY CARS. REF. SB/CT

BUSINESS ANALYST
LONDON
Excellent knowledge of Insurance systems required together with a solid D.P. background stretching over several years. Ideal applicants will have a professional approach, customer presence, commitment and must be prepared to be mobile. REF. MN/CT

LECTURERS
WEST LONDON
Strong commercial large mainframe experience required, with knowledge of on-line and/or database software. HONEYWELL Ltd skills particularly sought after, although any mainframe will be considered. Ability and desire to teach more important than experience so training will be given. REF. MN/CT

ICL PROGRAMMERS
LONDON and S.E.
Expertise at all levels required - particularly in VME/S, TPMS, IOMS, VME/2800. Also a number of ME28 vacancies - some of which will consider 2504 experience. Environments include software houses, insurance and commerce. REF. MN/CT

BURROUGHS PROFESSIONALS
We are still being retained by many prestigious clients looking for Programmers, Analyst/Programmers and Systems people with experience of BURROUGHS main, medium and large machines, to fill immediate vacancies in all areas. REF. SB/CT

CONTRACTS

SYSTEMS ANALYST PROGRAMMER
SYS ANALYST/PROGRAMMER
PROGRAMMERS
ANALYST/PROGRAMMER

IBM PAYROLL CONVERSION
APPLE PASCAL
IBM COBOL
TANDEM COBOL
SYSTEM 38 RPG III

MIDOX
NORTH LONDON
MIDDLE EAST
LONDON
CENTRAL LONDON

PROGRAMMER
ALL LEVELS
PROGRAMMERS
PROGRAMMERS & AN/PROGRAMMERS

A.D.F.
VAX COBOL
UNIX + "C"
COBOL CICS DL1

LONDON
LONDON
LONDON
HOME COUNTIES

TELEPHONE

253 5042

OR: 10 LINES (24 HOURS)

250 0456

COMPUVAC HOUSE

121-125 City Road, London, E.C.1

(NEXT TO OLD STREET TUBE EXIT) OR SEND C.V. TO

FREEPOST EC1B 1EN

Duncan Bransom Software Systems Ltd. will be continuing their expansion throughout 1983 and are now looking for COBOL PROGRAMMERS £9,000 - £12,000

The company, formed in 1974, has dedicated itself to the production of applications software of the highest quality, mainly for IBM mainframes.

To cope with the steady demand for its services and the growth planned for 1983 there are now vacancies for at least two COBOL Programmers.

Successful applicants will have had a minimum of two years COBOL experience on IBM machines. Knowledge of CICS, DL1, COBOL or ADABAS would be an advantage but this is not essential.

If you are looking to join a small dynamic organisation where, through your ability and hard work, you seek to progress to the top, this could be the opportunity for you.

You should be prepared to work either in our offices in the City or on the premises of our clients, most of whom are located in the London area.

A pleasant, stable working environment is maintained where people can develop their professional skills whilst earning good money. In addition to the salary, which is dependent on experience, there are a range of benefits including paid overtime and a profit sharing scheme.

Please contact **PHILIP TAYLOR** on 01-253 2196 to discuss a possible appointment, or write sending brief details of your career to date. Under no circumstances will your present employer be approached without first obtaining your permission in writing.

A company you can grow with

Duncan Bransom Software Systems Ltd.
Wilco House, 82/84 City Road, London EC1Y 2BJ. Telephone 01-253 2196

Duncan Bransom Limited

Operations Recruitment

WC2, quota earnings £20k + car plus numerous benefits and incentives

CoOperators is a leading force in operations recruitment and contract staffing. As part of the £10m VLI Group (which includes Computer People) we benefit from the facilities and resources of the UK's foremost computer staffing organisation.

These include prestigious headquarters building, three branch offices in the UK, and three more in the USA. Our consultants enjoy the advantage of our own in-house advertising agency, dedicated support and liaison staff, computerised database and up functions and impressive conference facilities.

We wish to appoint a consultant to join our London team which recruits permanent operations staff for clients. To be considered applicants should be aged 24-32 and possess:

- a good general education
 - experience of selling products or services within the computer industry for a professional company, or data processing experience with strong salesmanship potential
 - good spoken and written communication skills with a flair for efficient paperwork and administration
 - the drive and determination to succeed in a competitive market place.
- If you think you match up we'd like to hear from you. Ring Kay Stebbings on 01-836 8411 (working hours and until 7pm) to discuss this opportunity.

CoOperators



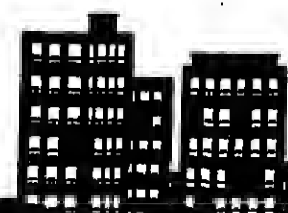
CoOperators, VLI House, St. Martins Lane, London WC2N 4JS.

VLI 909P

Technical Support Manager

to c.£14,000
+ 2 lease cars
+ benefits

West Midlands
(FULL RELOCATION)



Technical Sales & Management Appointments

SCR

Specialist Computer Recruitment Ltd

A new Company has recently been established to provide a Parts and Equipment distribution service to the worldwide customer base of one of the UK's leading manufacturing Organisations. The Company will operate on an autonomous basis with its own IBM computer facility supporting an extensive telecommunications network, and will initiate its own systems development plan to cater for the needs of the business.

A Management Team is being recruited to provide the impetus to this new venture and an exciting and challenging future is anticipated.

TECHNICAL SUPPORT MANAGER

This important position calls for a strong technical knowledge of IBM MVS environments together with database and telecomms exposure (ideally CICS/TOTAL/ENVIRON 1). Duties will include controlling a technical team covering Databases, Personal Computing, Operating Systems, and Telecomms Networks, as well as planning future technical enhancements to the installation. Experience will have been gained in Systems Programming or Technical Support, but candidates will need the ability to combine technical knowledge with effective man-management skills. Initially there will be periodic travel to a Northern site, but the new Computer Centre will be located in an attractive area to the South East of Birmingham.

An excellent salary will be paid, enhanced by 2 leased cars under a Management Car Plan, and medical cover through BUPA. Comprehensive relocation assistance will be available to this delightful area with easy access to the countryside of Warwickshire and Worcestershire.

To apply, please contact the Advising Consultant, **Martin Stainthorpe**, on **021-236 3781** (24 hour answering service) and submit a detailed c.v. to him at the Birmingham office of SCR.

PROFESSIONAL OPPORTUNITIES IN THE UNITED ARAB EMIRATES



شركة أبوظبي للعمليات البترولية البرية

Abu Dhabi Company for
Onshore Oil Operations
(ADCO)

We now offer challenging opportunities for professionals with requisite qualifications and experience in the oil industry for the following positions:

Job Ref	Post Title	Summary of Duties	Minimum Education & Experience	Salary Range UAE Dirhams per month	Location
S.10/83	Senior Systems Analyst (Business Application)	Direct & supervises the analysis of business requirements and design & introduction of computer systems to meet these requirements.	a. B.Sc. or equivalent in Computer related subjects plus two years' formal training in Computer Programming and Systems Analysis b. 5-8 years' experience in programming and Systems Analysis work including one year as a Project Leader in Business Applications c. Good knowledge of English and Arabic d. Excellent knowledge and experience on the IBM 308X Hardware and IBM Operating System for large mainframe such as MVS/SP, IMS, CICS, TSD, etc. and other software products available in the IBM large mainframe. e. Oil industry experience is preferable. f. Duration of Contract: 2-3 years.	10080-12450	Abu Dhabi Town
S.11/83	Senior Systems Analyst (Technical Application)	Directs and supervises the analysis of business requirements of technical systems, design and introduction of System and Software packages to meet these requirements.	a. B.Sc. or HND in Science or Petroleum Engineering subjects plus two years' formal training in Computer Programming and Systems Analysis b. 5-8 years' experience in Programming and Systems Analysis work including one year as Project Leader in the technical applications related to oil industry. c. Good knowledge of English. d. Excellent knowledge and experience on the IBM 308X Hardware and IBM Operating System for large mainframe such as MVS/SP, IMS, CICS, TSD, etc. and other software products available in the IBM large mainframe. e. Oil industry experience is mandatory. f. Duration of Contract: 2-3 years.	10080-12450	Abu Dhabi Town

The climate in the area is hot and humid in summer, temperate in autumn but moderate and pleasant during rest of the year. Abu Dhabi is a modern city with good shopping, communications and recreational facilities. Primary and Secondary Schools are available. This Company provides free furnished married or bachelor air-conditioned accommodation and air passage to home country with annual leave of 42 days.

In addition to free medical care, the Company also extends financial assistance to dependants attending schools up to completion of secondary school.

Clear handwritten applications (2 copies) in English giving full details of qualifications, training and experience as well as membership of professional associations and supported by copies of relevant testimonials, should be submitted to the following addresses:

- Human Resources Superintendent
Abu Dhabi Company for Onshore Oil Operations,
PO Box 270,
Abu Dhabi,
United Arab Emirates.
- Department of Petroleum,
PO Box 9,
Abu Dhabi,
United Arab Emirates.

RPG II Programmers ISN'T IT TIME YOU GOT AHEAD?



c £8,000 — £10,000 pa
Rural Home Counties
On-line Development

If you have at least 18 months RPG experience on any hardware this could be your opportunity to join a busy and successful programming team.

Following the purchase of a powerful new WANG VS100 programmers enjoy involvement in the analysis, design and programming of a wide variety of on-line and batch systems. Additionally the DP department is extending its existing telecommunications network and utilising a variety of other new technologies to improve customer service/information systems.

The company is in an exceptionally strong financial position and is totally committed to rewarding staff for their efforts and successes. Regular merit reviews are complemented by a bi-annual bonus scheme and annual cost of living salary review.

If you are looking to further your career in a challenging environment which will generously reward you for your efforts telephone Marc Zundel on 01-938 1804 (or 01-602 0885 between 7.30pm and 8.30pm) or write to us with full career details.

All applications will be treated in strictest confidence.

PP Information Processing People

20 Kensington Church Street, London W8 4EP
Telephone 01-938 1804 Telex 22861

IBM PROGRAMMERS HERTS c.£9K

Our client, a household name in manufacturing, running a small DP department are seeking commercial Programmers. Candidates must have minimum 18 months' COBOL in an IBM environment. Experience of CICS or VM/CMS useful.

ANALYST MIDDX c.£10,500K

This financial organisation involved in consumer lending is developing Systems on IBM 4341 under DOS/VSE, VM with CICS. Using COBOL they have established a requirement for an Analyst with programming background to join the team working on on-line systems.

SENIOR PROGRAMMER MIDDX £12-£14K

A multinational manufacturing company running IBM 370 under MVS with IMS CICS and TSO/SP etc. is seeking a candidate to lead, motivate and train a team of Programmers. Applicants should have four years' experience on IBM Mainframes including on-line COBOL and preferably some DATABASE.

COBOL PROGRAMMER MIDDX £9-£10K

This prestigious International Company in development of on-line Warehousing/Distribution and related systems on IBM 4341 under MVS soon to install IDMS. They are seeking a candidate with about two years' COBOL preferably on IBM mainframes to join a small team.

SYSTEM 34/38 PROGRAMMER HERTS to £10,000

Our client, a multinational manufacturer of components running 34's moving towards System 38. They are currently involved in MAAFICS both U.K. and Europe and heavily into communications. They require someone with at least two years' RPG II preferably with a manufacturing background, exposure to MAAFICS would be advantageous.

RPG III ANALYST/ PROGRAMMER MIDDX £10-£14K

The services division of a successful company also operates as a software house in the System 38 market they are seeking an applicant with at least three years' DP experience including RPG III. Applicants should be able to successfully liaise with clients and take systems from feasibility to implementation.

RPG III PROGRAMMERS MIDDX £8-£11K

A small friendly DP department in a rapidly expanding insurance company has recently installed System 38 they need Programmers with good knowledge of RPG III to join the development team. Long-term prospects are good due to planned expansion. A mortgage subsidy is available.

ANALYST/ PROGRAMMERS BEDS to £10K

A leading service company enjoying rapid growth in an expanding market in the U.K. Currently utilising 34's soon to be upgraded to 38. Candidates must have a minimum 18 months' to two years' RPG III in a 34 or System 3 environment. Systems include development of financial applications.

For further information contact Nick Lawrie (Middx positions) or Chris Chahade (other positions)
HOWLETT COMPUTER SERVICES
FREEPOST
Leighton Buzzard
Beds LU7 7BR
Telephones 0525 382655 (3 lines) or 029 872 221 (evening/weekend)

(4831)



HOWLETT

COMPUTER SERVICES

PUBLIC SECTOR APPOINTMENTS

UNIVERSITY OF ASTON IN BIRMINGHAM MICROPROCESSOR UNIT

LECTURURER

Applications are invited for the above post. The Microprocessor Unit provides undergraduate and postgraduate courses, undertakes project investigations and is actively engaged in research. The Unit is associated with the Department of Electrical and Electronic Engineering. It also provides a University central resource for research, design and development of programmable electronic systems, microprocessors and related computational systems, software and systems engineering.

The lecturer appointed will be expected to undertake teaching duties associated with the Unit and the Department of Electrical and Electronic Engineering. The post should provide an excellent opportunity for research.

Applicants should have research interests which complement or augment those outlined above and should have a higher degree or equivalent experience. Initial salary will be within and up to the maximum of the range £7190 to £14125 per annum. Appointment will be made for a period of three years initially with the possibility of renewal or a move to a continuing appointment.

Application forms and further particulars may be obtained from the Staff Officer (Ref: 664/102), University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET. Tel: 021-359 3871, Ext. 4584. Closing date for the receipt of applications is 26th August, 1983.

(4884)

SUNDERLAND AND POLYTECHNIC FACULTY OF ENGINEERING DEPARTMENT OF ELECTRONIC, ELECTRONIC AND CONTROL ENGINEERING LECTURER GRADE II/SENIOR LECTURER SOFTWARE ENGINEERING

Salary Scale: £11 - £21,500 per annum

Following the award of significant additional funding for developments in Information Technology, applications are requested for permanent posts at the L101 & L102 grade.

Candidates are sought with expertise/research interests in Software Engineering and the interface between hardware and software in the design of systems. Experience in the use of PASCAL, ADA, C, LISP, etc., would be an advantage.

Candidates should have a good Honours Degree or equivalent qualifications; higher degree preferred. They should also offer appropriate industrial research and/or teaching experience.

An application form and further particulars (Ref: EEC2) may be obtained from: The Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland SR2 7EE.

Closing date: 18.8.83.

(4854)

UNIVERSITY OF OXFORD

COMPUTER PROGRAMMER

There is a vacancy for an experienced programmer in the Data Processing and Management Services Section of the University Offices. The successful applicant will work closely with systems analysts on an interesting range of applications in the field of university administration. The computer is an ICL 2980 running under CMS.

Applicants should have at least two years' experience of COBOL, preferably (but not necessarily) in an ICL environment. A knowledge of TASM or FTLB would be an added advantage.

Salary will be on the scale £3,100 to £11,815; starting salary according to qualifications and experience. Further particulars of the post may be obtained from the address below.

Applications giving full details of educational qualifications, previous experience and indicating the names of two persons familiar with the applicant's work, to whom further references may be made, should be sent to the Head of Management Services, University Offices, Wellington Square, Oxford OX1 2JD.

(4885)

U.M.I.T. JUNIOR PROGRAMMER

A vacancy exists in the Central Systems Centre for a Junior Programmer to work on the development and implementation of software for the Computer Aided Design of Control Systems.

The successful candidate will be involved in the design and development of software for the control of industrial processes. The post is an excellent opportunity for a graduate with a degree in Computer Science or a related discipline.

Applicants should have a good Honours Degree or equivalent qualifications; higher degree preferred. They should also offer appropriate industrial research and/or teaching experience.

An application form and further particulars (Ref: EEC2) may be obtained from: The Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland SR2 7EE.

Closing date: 18.8.83.

(4885)

GRAPHICS ADVISER

This post in the programming section of the Computing Services section is to promote the wider use of computer graphics facilities throughout the Polytechnic.

Experience with interactive graphics is essential, together with an interest in developing software to support existing systems. The principal responsibility is to advise users on applications and assist them in implementation.

Computing facilities include a Zenith 310, a Vax 11/780 and a wide range of microcomputers, and career development opportunities are available.

Applicants must be graduates with at least one year's solid programming experience, preferably in Pascal, Fortran or Basic.

Salary scale (under review) is currently £2450-£3100 inclusive of London Allowance.

Commencing salary in accordance with qualifications and experience.

For further details and application forms, please apply to Peter Jefferys, Head of Computing Services, Polytechnic of Northampton, Northampton NN1 6DB. Tel: 077 2735, Extension 2235.

(4886)

UNIVERSITY OF LIVERPOOL

Department of Economics and Business Studies

Applications are invited for the post of Research Assistant.

In the Department of Economics and Business Studies. The person appointed will be required to act as computer programmer to develop software for economic modelling.

Candidates should have a good knowledge of computer programming and numerical analysis; training in economics is not essential but would be useful.

The initial salary will be on the scale £3,310-£8,530 per annum.

Applications, together with the names of three referees, should be received not later than 8th September, 1983, by The Registrar, The University, P.O. Box 147, Liverpool L69 3BX, from whom further particulars may be obtained. Quote ref: RV/106.

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Computer Systems Programmer

Salary grade S01 £9,060-£9,660

Applications are invited for the above post from persons having at least two years' experience as a systems programmer. OOS/VSE and CICS experience would be an advantage. This challenging post is within a newly created section to be responsible for the development of the Council's recently acquired IBM 4331 computer. The successful candidate, under the direction of the Computer Manager, will be responsible for installing and maintaining the operating software and TP network.

West Norfolk is an area of outstanding natural beauty which covers 800 square miles and contains 120,000 resident population. It combines attractive countryside with pleasant small towns and villages and is centred on King's Lynn, a thriving port, agricultural centre and expansion town. Housing is reasonably priced, while temporary housing accommodation is likely to be available together with relocation expenses.

Application forms and job descriptions are available from the Personnel Section, Chief Executive Officer's Department, King's Court, Chapel Street, King's Lynn, Norfolk PE30 1EX. Telephone King's Lynn 81241, Ext. 295.

Closing date 19th August, 1983

**BOROUGH COUNCIL OF KING'S LYNN
AND WEST NORFOLK**

(4887)

POLYTECHNIC OF THE SOUTH BANK

Borough Road, London SE1 0AA

COMMUNICATIONS CONTROLLER

Salary up to £8,184 per annum inclusive of London Allowance (currently under review)

South Bank Polytechnic Computer Centre has a large DECsystem 10 timesharing computer which supports 100 simultaneous users. A VAX11/780 and a VAX11/750 computer are arriving shortly. Connection to these computers will be via a MICOM 800 port selector which will handle the 300 terminals and 200 computer links.

The Polytechnic has three remote sites linked to the main centre by British Telecom private wires with terminals located in various departments.

We are looking for a person with data communications experience and the appropriate technical qualifications.

Application form and further particulars of the post are available from:

Staffing Office

Polytechnic of the South Bank
Borough Road, London SE1 0AA

Tel: 01-928 8969 Ext: 2355
Closing date: 22 August 1983

(4888)

UNIVERSITY OF NOTTINGHAM

Crisps Computing Centre

SYSTEMS PROGRAMMER

Applications are invited for the post of Systems Programmer in the Systems Section.

The Centre operates ICL 2977 and 2978 computers, a VAX 11/780 and several PDP-11 systems. Both wide and local area network development work is in progress, involving the University of Manchester National Computing Centre, the Midlands Universities network and PPS.

A CSC Computer Facilities Exchange is also shortly to be installed.

The Systems Section is responsible for VME/8 systems software, and the development of general operating systems software, including user commands including VME/8, a File Analysis and System and News/Alert facilities. It is also responsible for the installation and development of a Unix based system on a PDP-11 and on ICL PERQ.

The successful candidate will be developing systems software for one or more of the above-mentioned systems, and a good knowledge of VME/8 or VME 2980 and some Unix experience would be an advantage.

Applicants should normally have a good honours degree or equivalent experience. Starting salary will be in the range £7,475-£8,080 (A) or £3,080-£3,676 (B). According to level of experience.

Further details and information forms, returnable and later than 21 August 1983, may be obtained from the Staff Appointments Office, University of Nottingham, University Park, Nottingham NG7 2RD.

Ref. No. 850(A).

(4889)

NEWCASTLE UPON TYNE POLYTECHNIC

Computer Unit

SENIOR SYSTEMS PROGRAMMER (P1 (A-B))

required to be responsible for a number of computer systems supporting 100 terminals. Candidates would be expected to have a minimum of two years' systems programming experience. Experience of computer networks would be an advantage.

SENIOR PROGRAMMER/ANALYST (P1 (A-B))

Ref No APC 20033

Required to assist in the planning, design and management of computer projects. Candidates will be expected to have a minimum of two years' programming experience. Preference will be given to candidates with experience of systems programming, networking or graphics.

Candidates for both posts will be assessed on a combination of academic and professional qualifications together with relevant experience.

NAC Salary and Conditions of Service: P01 (A-B) £10,261-£12,027 per annum. P01 (A-B) £3,080-£3,676 per annum.

For further details and application forms please call our 24 hour telephone answering service (091 221150) or write enclosing a stamped addressed footpad to: Administrative Assistant (Personnel), Newcastle upon Tyne Polytechnic, Elton Building, Elton, Newcastle upon Tyne NE1 8BT. In which completed forms should be returned quoting the reference number by 15 August 1983.

Ref: APC 20033.

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City of
Nottingham

AN EQUAL OPPORTUNITY EMPLOYER

City Treasury - Computer Division

Senior Programmer

Grade S01/2 £9,060-£10,539

The City Council operates an ICL 2980 Computer with an extensive communications network including an on-line development service. The main language used is RANGE COBOL under GEOS operating system.

Consideration is being given to the installation of a second mainframe processor and a move to VME.

Applicants should have a minimum of three years' programming experience, at least one having been in COBOL. Knowledge of communications programming, PLAN, or VME would be an advantage.

Application forms and further details are available from The Personnel Manager, Ref CT/4781, City Secretary's Department, The Guildhall, Nottingham NG1 4BT. Telephone (0802) 418571 extension 38. Closing date: August 19, 1983.

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INTERCOM DATA SYSTEMS

INTERCOM DATA SYSTEMS were formed to provide a dedicated System House solution to the communication and Information Technology requirements of major companies, banks and Government organisations. With a comprehensive client list, an excellent reputation and a full range of products and services we are in the forefront of technology, and now require key staff to match.

Technical Product Support Consultant c. £15,000

A sound DEC based technical knowledge preferably including VAX, VMS, FORTRAN perhaps with VIDEOTEX/INFORMATION TECHNOLOGY experience. Absolutely essential are the interpersonal skills to support our clients and install our products, together with a 'user-friendly' approach. In line with the nature and importance of this post the salary is TRULY NEGOTIABLE.

Software Engineers and Programmers c. £14,000

Experienced VAX, VMS, MACRO, RSX11M, FORTRAN, REALTIME people are urgently needed to work on a variety of projects including VIDEOTEX and NETWORKS. We require competent skilled staff and are ready to CONVINCE them to join us. We have two in-house VAX 11/750s and there are opportunities for travel and user contact.

Our working environment is superb with BRAND NEW PURPOSE BUILT offices in WOKING. Long term prospects are excellent and initiative and effort will be rewarded quickly with regular reviews and a policy for promotion based solely on merit.

FOR FURTHER INFORMATION contact our advising consultant, MARSHALL CLIGMAN at Targa Computer Recruitment or at home Telephone 011-771-7655.

TCR Targa Computer Recruitment
11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

KINGSTON POLYTECHNIC COMPUTER UNIT COMPUTING OFFICER

The User Services Section of the Computer Unit provides all the user support for the computing facilities offered at the Polytechnic for both staff and students. The Section's responsibilities include a wide range of applications software, compilers and documentation as well as program advisory and user education services.

There are two vacancies for graduates (in any subject) within range Scale 4/B (bar)-S01: £5,881-£9,308 (bar)-£10,267.

Further details and application forms (to be returned by 26th August) from Assistant Registrar (Personnel), Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-548 1358.

(4834)

PETERBOROUGH CITY COUNCIL CITY TREASURERS DEPARTMENT

COMPUTER AUDITOR

SENIOR OFFICERS GRADE 1/2
£9,060-£10,539

Applications are invited from persons with relevant computer experience for this post which is situated within the Audit Section.

The postholder will be responsible to the Chief Internal Auditor, and as the Council is engaged in an extensive and ambitious development programme, the person appointed will be required to expand and develop the Authority's approach to computer audit incorporating both new and existing systems.

The Council has recently installed a range of ICL equipment, including a network of terminals located in most central departments, all are linked to a central ME29 which also acts as a terminal link to an IBM 4341.

In addition to the salary we offer:

★ Flexible working hours (37 hours per week) and (in appropriate cases)

★ Generous relocation expenses (including solicitors and estate agents fees)

★ Housing accommodation or lodging allowance

Application forms and further details available from City Treasurer, PO Box 9, Town Hall, Bridge Street, Peterborough PE1 1HQ, or by telephoning Gulam Shariff on (0733) 63141 Ext 383.

Completed application forms should be returned by Friday, 12th August, 1983.

(4835)

Micro Commercial Package Design

£13,500 + Car
Thames Valley

A leading force in the field of audio and visual technology is branching out into micro computers aimed at the small business market.

In May 1983 they launched their word processor into the market place and will follow shortly with their own micro. The work involved prior to the launch is extensive, particularly in the area of package design for software houses.

Our client, a recognised multi-national, is looking for a competent analyst/programmer who can develop packages in-house and in conjunction with external software houses.

The micro will be marketed through a national dealer network and the successful candidate will be involved in dealer training and also technical support.

Candidates must have previous commercial micro skills and be capable of liaising with all levels of staff. Full product training will be given.

Benefits for this very interesting position include a 1600 cc car, 23 days holiday and generous staff discounts.

Please contact Sue Ashby.

**Ferguson Thorley Bowles
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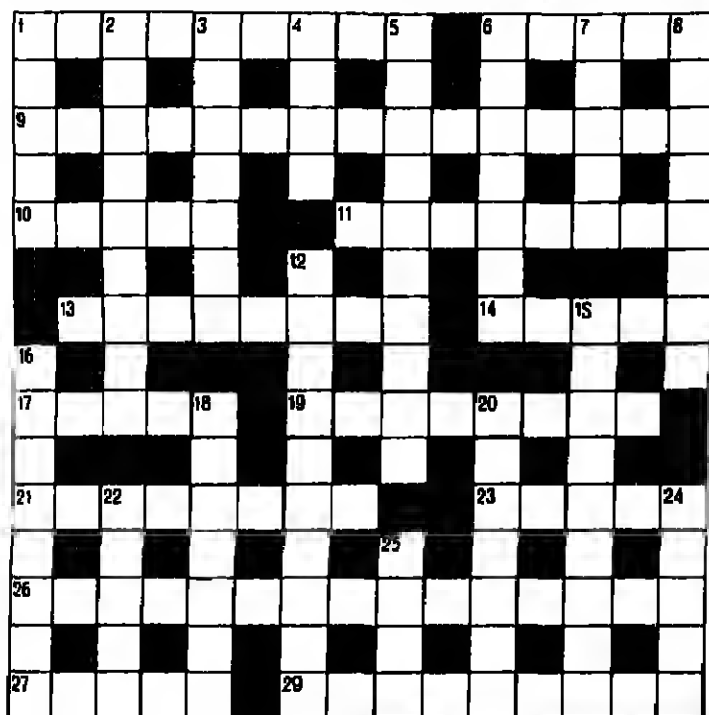
محکم از ان القل

CROSSWORD

Prize Crossword No 43

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, August 12. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name (Miss, Mrs, Ms, Mr)

Address

Telephone

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed Date

ACROSS

- 1 Unrestricted traffic, without charge, to move rapidly back East (4,5)
- 6 What model did, being exceptionally big, when caught by returning deputy (5)
- 9 Listener tucking into vegetables that show signs of bruising (11,4)
- 10 Bird initially keen to show off (5)
- 11 Fighters who have damaged ribs? Sure! (8)
- 12 Turn and move about confusedly in the theatre (8)
- 14 A transparent fabric, look, wrapped round uranium (5)
- 17 A southern novel in apparently perfect condition (2,3)
- 19 What goes on forearm, perhaps, makes chiefs become ill (4,4)
- 21 Avoid having flab and fowl (8)
- 23 Astir behind, grabbing a couple of ducks (5)
- 26 Bat, for instance, can run into flames when swerving (9,6)
- 27 Mothers drinking a spot of rum in small portions (5)
- 28 Hell the man's had among a backward group (3,6)

DOWN

- 1 Converge, making most of enemy swear endlessly (5)
- 2 A Mountie, about fifty, versatile in competition (9)
- 3 Edward, holding a stick, gets duped (7)
- 4 Competent sailor joins the French (4)
- 5 Two kings who wrote nonsensical verse (6,4)
- 6,7 Standard speed when carrying monarchs where one can pull in (7,5)
- 8 Diana's plant is a complete failure (8)
- 12 It can trap a swimmer and finish gent off (7-3)
- 15 World authority 1 established, dressed like soldiers, say (9)
- 16 People drinking tot will get the editor enraged (8)
- 18 The legal profession turned up, crazy for some dessert? (7)
- 20 Trusty aunt's unruly child (7)
- 22 Company takes care of one, providing a drink (5)
- 24,25 Is untruthful - ie lets all become distorted (5,1,3)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the nearest relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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IBM OPPORTUNITIES

COBOL PROGRAMMER

To £9,500

MIDDLESEX. Excellent opportunity for a programmer with 18 months' COBOL, to gain on-line experience with this prestigious world-wide organisation in Middlesex. Current configuration is an IBM 4341 under OS/MVS, with IDMS coming in shortly. You will be an integral part of a development team working on financial and commercial on-line projects, using structured programming techniques, and benefits include discount on goods, car scheme and subsidised restaurant. REF G/2440

ANALYST/PROGRAMMERS

To £11,000 + Relocation

ESSEX. Due to continued company expansion, this leading financial concern are seeking to recruit additional IBM Analyst/Programmers to join their D.P. Department that is currently involved in significant development projects. The company house an IBM 4341 running DOS/VSE & CICS. Working knowledge of VSAM would be an asset. The ideal applicant will be highly motivated and prepared to take up a challenge. The company offer excellent working conditions which includes non-contributory pension scheme, BUPA, Active sports and social club. REF G/2103

IBM PROGRAMMER £10,000

CITY. An international organisation is currently seeking an IBM COBOL programmer with a minimum of 2 years' experience. The company retain an IBM 4341 running under MVS and CMS. You will be heavily involved with on-line development work, and CICS experience would be useful. You will enjoy a variety of benefits including flexitime, L.V.s and S.T.L. REF G/2435

IBM PL/1 c. £9,500 + Mort

CITY. Excellent opportunity to widen your experience with this major banking concern. If you can offer 12 months' PL/1 or OS/VS1 experience with fluency in PL/1 programming language, they will offer you full training in Database techniques, and all aspects of systems design. A full benefits package is offered which includes mortgage subsidy. REF O/2631

PL/1-TRAINING IN CICS

£GOOD!!!

This highly successful Keot based PL/1 site is expanding and is currently seeking programmers with a minimum of 12 months' PL/1 experience. The majority of work is of a development nature and will involve the successful applicant in much user-concentrated. The successful applicant will be given training in CICS and the opportunities to improve and utilise their skills. The company offers many financial benefits including low interest mortgage, bonuses, and non-contributory pension scheme.

PROGRAMMER/ANALYST

£10,500

LONDON. An exciting opportunity for an IBM COBOL Programmer to become immediately involved in the development of an on-line database commercial project. You will be working on an IBM 4341 running under DOS/VSE, CICS & DL/I. Experience is an advantage although training can be provided where necessary. Package includes non-contributory pension scheme, free life insurance, substantial twice yearly bonus, and active sports and social club. REF G/2365

RPG II/III

IBM SYSTEM 38 To £12,500

WEND. Superb opportunity to join this highly professional financial organisation based in the heart of the West End. As a key member of a small team you will be responsible for development of Accounting and Insurance Systems. You will be given every opportunity to increase your analytical skills. Excellent working conditions, including air conditioned offices and free lunches. REF G/2634

RPG II/III £12,000

MIDDLESEX. Senior position for an experienced IBM System 34/RPG II Programmer/Analyst to play a leading role in a major conversion project, which will involve a lot of user contact and liaison with senior managers. Once the project is completed you will receive a 10% bonus and work solely on the IBM System 38. REF G/2641

IBM SYSTEM 34 £10,000

LONDON/ESTS BORDERS. 1 year's IBM System 34/RPG II experience is essential for this position. The successful candidate will be involved in many varied and challenging development applications, including training in analysis, and liaison with non D.P. users. You will be well rewarded in terms of salary and perks. REF G/2359

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ENGLEDOWN
COMPUTER PERSONNEL CONSULTANTS

ANALYST/PROGRAMMER

To £12,000

LONDON. Highly reputed firm of commodity brokers based in the City requires an RPG III Analyst/Programmer who will be a key member of a small on-line development team, who are embarking on a large financial project. If you seek a challenging position this could be an ideal career move for you. Perks include £5 per week L.V.s and interest free season ticket loan. REF G/2590

OTHERS

HEWLETT PACKARD - SENIOR

c. £12,000 + RELOCATION

An excellent opportunity has arisen for a Hewlett Packard programmer to move into analysis. This high technology company based in Bucks, seek ambitious persons with experience of H.P. IMAGE, VIEW and/or structured systems analysis techniques. Many new development projects are anticipated for the future, following the installation of a new network of HP3000 machines. Applications include Sales Order Processing, Distribution and Export. The company offers an attractive salary and package which will include relocation. REF A/2561

HEWLETT PACKARD - COBOL £10,000

Can you offer in excess of 6 months commercial HP3000 COBOL expertise? My London based client can offer you the chance to become extensively involved in on-line development projects of an extremely challenging nature. You will have much user contact and will soon be completing your own analysis duties. The opportunity also exists for you to learn a new language. REF A/2531

HONEYWELL -

ALL LEVELS To £10,500

My Essex based client is seeking Honeywell mainframe COBOL expertise at all levels from Programmer to Senior Analyst/Programmer. 18 months + relevant experience is required together with DM4 and/or TDS. The more senior applicants will immediately be involved in challenging database development projects, including completing systems design work. The programmers will be encouraged to move into analysis work by writing their own specifications for interesting on-line development projects both of commercial and financial nature. Benefits include 5 weeks' holiday; subsidised restaurant; company car; non-contributory pension scheme and social club. REF A/1712

HONEYWELL MINI-COBOL/SCREENWRITE

To £10,000

This London based Honeywell L6 site would like to hear from L6 Programmers with in excess of 12 months COBOL and/or Screenwrite expertise who wish to further their career in a financial/commercial environment. You will play an integral part in a team developing new real-time systems for the company's use. There will be much user contact and the chance to progress into analysis. For this and many other L6 positions call now quoting: REF A/2566

DEC/PDP-BASIC + 2 c. £9,500

This prestigious multi-national company utilises the latest technology to administer its manufacturing and commercial projects. To assist in the development of highly sophisticated systems on additional Programmer/Analyst is to be appointed. Ideal candidate should have a minimum of 12 months' DEC/PDP BASIC + 2 exp, hopefully but not essentially with RSTS/E. You will also be trained on another mainframe. Company is based on the London/Middlesex borders. REF A/1249

COBOL - RETRAIN LATEST EQUIPMENT

To £11,000

Excellent opportunity for COBOL Programmers to retrain onto the latest Honeywell kit. Due to expansion, my Surrey based clients seek applicants with upwards of 2 years COBOL experience together with knowledge of structured programming. Preference will be given to those with on-line and/or database backgrounds. They are currently embarking on a series of financial development projects using the most recent programming techniques. There is a degree of analysis involved and the successful applicant will have regular user liaison. Company benefits include a non-contributory pension scheme, L.V.s and 5 weeks' holiday. REF A/2359

DEC - RETRAIN TO IBM

c. £9,000

Exciting opportunity for a DEC/PDP BASIC 2 programmer to begin retraining almost immediately on a new IBM 4331 using CICS. You will be required to complete some maintenance on the DEC, whilst developing projects on the IBM. Applications include Order Processing, Management Information, and Logistics. London based, my clients offer a good career path, excellent salary and extensive training. REF A/2369

BURROUGHS - COBOL

To £12,000

A semi management position exists for a D.P. professional with in excess of 3 years solid BURROUGHS COBOL expertise, preferably with having done some systems work. You will be reporting directly to the Financial Director and will take responsibility for a large area of the department, running a sophisticated Accounting System. Liaison with users will play a large part of the job as will management liaison. A good salary is offered and benefits include free life insurance, BUPA, lunches and excellent working conditions. REF A/1010

ANALYST/PROGRAMMER

c. £9,500

BERKS. Superb opportunity for an experienced and enthusiastic programming professional with three years' COBOL, including one year as an Analyst/Programmer, to take up a key position within this major manufacturing company. The successful candidate will be joining a busy development team, working directly with user groups to design, write and implement a range of commercial systems. The work will be based on ICL 2966 and ME29 hardware. Good prospects to move into analysis, and to increase technical expertise. Company benefits include 5 weeks' holiday, free life assurance and pension scheme. REF D/2633

Z80 FIVE FIGURES!!!

Highly competitive West End based bureau currently seeking experienced Data Processing professionals with considerable experience of ASSEMBLER on Z80/6502 micro hardware. The successful applicant will be developing a range of financial, banking, and commercial applications. This is an outstanding opportunity that offers a full benefits package and very high salary for the right person. REF D/2348

MAJOR ICL DEVELOPMENTS

c. £9,500 + Mort

SURREY. This Surrey based insurance concern currently in the process of developing new systems are offering interesting work to programmers and analysts/programmers who can offer in excess of 18 months' COBOL experience. Experience of VME would be desirable, and is rewarded accordingly. Full training is offered in database techniques, PL/1 systems, and aspects of systems design. This is an excellent opportunity to gain varied and practical experience while pursuing a worthwhile career. Company benefits include 4 weeks' holiday, subsidised restaurant and pension scheme. REF D/1739

DATAPoint OR TEXAS INSTRUMENT £9-13,000

Two outstanding opportunities with London and Middlesex based software houses. One requirement is for a Datapoint programmer with Databus and Dotoshore experience to develop commercial and communications systems. The other for a COBOL Analyst/Programmer with Texas Instruments or other mini COBOL experience. Full company benefit package and good career prospects for the right people. REF D/26154

SYSTEMS ANALYST £11,000

ESSEX. Large progressive company based in Essex housing 2500 staff is seeking an experienced analyst with one or more years' formal analysis experience and should be able to demonstrate skills in either the financial, commercial or technical sectors. VME exposure would be preferred but is not essential. The successful candidate will also have the ability to liaise with users at all levels. Ideal opportunity to join a challenging, dynamic but friendly team. REF D/2636

FORTRAN - PDP £NEB

Can you offer a minimum of 2 years' FORTRAN expertise, on DEC/PDP equipment? You will become involved in the development of engineering and scientific projects, using graphics. Extensive training is offered in RPL, ILM, CP/M, UNIX and MACRO II in RPL. Kent based, my client is seeking a more experienced Programmer/Analyst with the desire to move into systems work in the near future. Salary will be commensurate with your experience and other benefits include Lanchester Club, sports and social facilities. REF D/1159

Applications are invited by the Police Authority for Northern Ireland for men and women not more than 35 years of age on 11 August 1983 for the posts of:

SYSTEMS ANALYST/PROGRAMMER ANALYST

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- (i) Development, installation and enhancement of mini computer systems for administrative and operational requirements.
- (ii) Assisting in the operation and maintenance of such systems.

SYSTEMS ANALYST

(Salary Scale £8,166-£10,218)

Applicants must have either a minimum of 5 years experience or at least 4 years experience plus a degree, HND or equivalent qualification in computer science, engineering, mathematics or other related discipline.

PROGRAMMER ANALYST

(Salary Scale £6,819-£8,717)

Applicants must have either a minimum of 3 years relevant computing experience or at least 2 years experience plus a degree, HND or equivalent qualification or above.

Grading and starting salary will be related to qualifications and experience. Allowances may also be made for relevant post graduate experience.

Non-contributory pension scheme (apart from a deduction of 1 1/2% towards provision of widow's pension in the case of male officers).

The Authority may decide to interview only those applicants who appear from the information available including qualifications, duration and extent of previous experience, to be best suited for the post.

Application forms which must be returned no later than 11 August 1983 and conditions of service are obtainable from Recruitment Section (Telephone Belfast 230111, Ext 242 and 271).

POLICE AUTHORITY FOR NORTHERN IRELAND
5th floor, River House, 48 High Street, Belfast BT1 2DR

Development Project Manager

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Systems Analyst

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Two experienced computer professionals are required to join our development team, one as Project Manager, the other as a Systems Analyst. The Project Manager will be responsible for the development, management, supervision and control of a large scale on-line P.T. system for which a multi-discipline Project Team is already in operation. Both persons appointed will have had considerable experience in the development of on-line systems preferably within a hospital environment.

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Salary according to experience, will be within the range £13,336-£14,320 p.a. for the Project Manager and £9,657-£11,640 p.a. for the Systems Analyst with a contributory pension scheme and an annual leave entitlement of 24 days. The flexitime scheme is in operation.

CROYDON

Contact S. W. Alfred on 01-886 4433 extn. 2861 for informal discussions and/or send full a.v. to Head of Computer Services, London Borough of Croydon, Taberner House, Park Lane, Croydon CR9 3JS.

MANAGER

SKELMERSDALE INFORMATION TECHNOLOGY CENTRE

£12,400-£13,805

The Skelmersdale Information Technology Centre, which is being sponsored by Lancashire Enterprises and West Lancashire District Council is seeking a Manager to lead a team to supervise this challenging new project.

The Centre will provide 12 months' training and "hands on" work experience for 40 young unemployed people in the new Information Technology, thereby enhancing their job prospects.

The Centre will cover three main areas of training: (i) Micro-Electronics/modern electronic component and the use of microprocessors as simple control devices; (ii) Microcomputing skills associated with microcomputer operations, an appreciation of computer architecture, both hard and software, and an elementary high-level programming facility; and (iii) the Electronic Office/uses of computers and electronic communication systems in modern business applications.

In addition the Centre will assist the local industrial and commercial community by making the technology accessible to local firms specially new and small businesses.

The successful candidate will be responsible to the Management Committee for the efficient and effective running of the Centre, and will have qualifications and/or significant experience in the microtechnology field. The position requires the ability, enthusiasm and commitment to motivate young people and to establish and maintain a wide network of contacts with industry, commerce, academic institutions, etc., in order to develop the work of the Centre in an imaginative way.

More detailed information can be obtained from the address given below.

Please write with full c.v. to the Personnel Manager, West Lancashire District Council, 82 Derby Street, Ormskirk L40 2DF.

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The Computer group is a separate division within the Borough Treasurer's Department and the postholder will lead and manage the group as well as serve as a member of the Treasurer's Management Team.

The appointment calls for a high level of management skill and the successful applicant will be expected to take a positive role in developing computer services for the Borough.

Application forms from the Administrative Officer, Borough Treasurer's Department, Civic Centre, Lamington Road, Hounslow TW3 4ON. Tel 01-570 7728 ext 3372. Closing date: 12 August 1983.

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Details may be discussed with the Head of the Computer Centre: Telephone Middleborough 219121 ext. 4119. Closing date: 18th August 1983. Delivery is required by September 1983.

Quotation forms may be obtained from: The Supplies/Purchasing Officer, Teesside Polytechnic, Borough Road, MIDDLEBROUGH, Cleveland TS1 3BA.

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SALES BIT

Quality of Management - 62

Why most sales managers fail

DESPITE the high level of unemployment any recruitment agency will tell you that, irrespective of job function, it is still as difficult to find capable and successful people as it has always been.

Sales managers are no exception, indeed, one does not have to look too far to see how many inadequate people are able to sustain a living in the role of sales manager without any real chance of ever fulfilling the obligations of their position.

There are so many who have no true perception of what constitutes a successful sales manager, let alone the means by which success can be achieved.

Certainly it is always much easier to point out the failings of others than to highlight their accomplishments. From the point of view, politics to business, there is never a shortage of negative critics.

The doers are always vastly outnumbered by those who are anxious to tell us what we are doing wrong, yet somehow avoiding the risk of demonstrating, by way of personal example, how we shall do it right. The world, it seems, is full of consultants.

Alan Williams is now on holiday. Sales Bit will appear again on his return.

Nevertheless, it is interesting to consider why so many sales managers fail or in many diplomatic terms, why so many sales managers fail to reach the level of success they should be capable of achieving.

Maybe for many it is that for them "management by divine providence" simply hasn't worked. They each knelt down before their respective managing directors, the sword was tapped confidently on each shoulder, but somehow the magic didn't work.

Perhaps that trivialises the management-making process, but it is not far removed from reality.

I firmly believe most managers fail because they are never trained to be managers. Their only conception of the job is viewed from a subordinate position; they are simply expected to become the peer by virtue of having the title bestowed upon them.

One day a salesman - the next a manager. The skills you had yesterday are of marginal value; the skills required today are a mixture of mystery and assumption.

Yesterday you achieved it yourself by direct and undiluted action; today success must be accomplished through other people. When you started out as a salesman, you no doubt enjoyed your basic selling training and probably gained much benefit from specialised courses on particular aspects of selling. Now, as a shiny new sales manager there is no time, no funding, no appropriate training course or no inclination on the part of the company to provide the means for obtaining the new skills you so desperately need.

So what do you do now - sit behind your desk and contemplate your globe of the world, rush out and prove to the salesforce you're a better salesman than any of them, or write a memo to let everyone know who's in charge.

It isn't easy. Sales management for beginners is usually a "booby-trap" job. Yet even for the apparently experienced manager things often run awry.

Perhaps if we look at some typical areas of failure it may be possible to identify what sales managers can do to maximise their effectiveness.

A common problem, particularly for those new to sales management, is establishing the right kind of relationship with those who were previously colleagues

and drinking partners and are now subordinates through whom sales success has to be achieved.

The easiest route is to continue to be one of the boys: "Look here lads, some are horn managers, some become managers and others have management thrust upon them. I didn't really want this job, but now I've got it why don't you know what real mates you are and help me achieve these wholly unreasonable sales targets?"

It takes far less effort and courage to take the salesman's side in company related issues irrespective of truth and responsibility. It is difficult not to sympathise with someone who has the problems and pressures you have experienced yourself, someone you have perhaps known for years.

Conversely, the impersonal and inflexible manner of the company, lost in a mist of faceless shareholders and peddled overloads seems too cold a bedfellow on which to bestow one's unbidded loyalty.

Nevertheless, unavoidable truth has to be faced. The company put you in the job and pays you to do it right. You shouldn't have joined if you can't take a joke!

I believe the best recipe for success is to develop the skill of holding the middle ground. Nobody loves a megalomaniac; no company respects a manager who cannot mentally "leave the ranks".

Just as the salesman must develop the skill of being the company to the client and the client to the company, the sales manager must become, the company to the salesman and the salesman to the company. (This applies equally if you direct subordinates are themselves managers.)

It is the difference between being with the sales force as opposed to of the sales force, sympathetic to their problems and opportunities without being their ally in an undeclared war against that amorphous and unforgiving monster the company, which apparently pursues his remorseless path for ever while the salesman, it seems, is only as good as last month's performance.